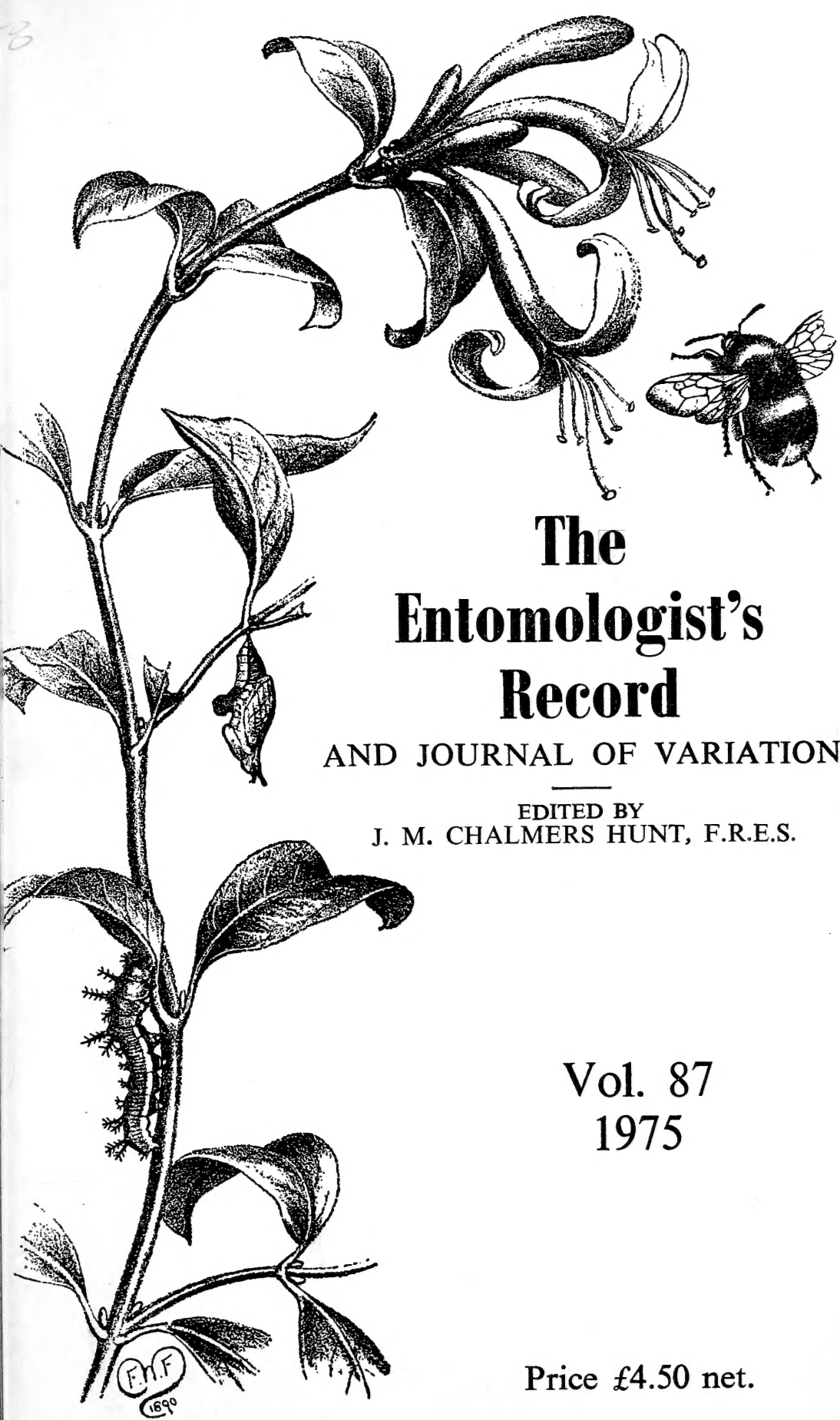


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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

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with the assistance of

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C. A. COLLINGWOOD, B.SC., F.R.E.S.

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Jamaica Revisited: April, 1974

By C. G. M. DE WORMS, M.A., Ph.D., F.R.E.S.

Three Oaks, Shores Road, Horsell, Woking, Surrey

I thought it of interest to record some of my collecting in Jamaica at a different time of year from my first visit in September 1971 when I had the company of Mr. Theodore Homer (*vide* this journal **84**: 219-223 and 242-247). I had the opportunity of revisiting this grand island through a further invitation from Dr. Charles and Mrs. Helen Goodall to stay with them at their lovely house three miles east of Port Antonio on the north-east coast. As before, during my three-week stay with them my hosts gave me every kindness and lavish hospitality.

I set out by air from Heathrow on 6th April and after stops at Bermuda and Nassau in the Bahamas we touched down at Kingston just as it was getting dark. A car was waiting to take me the 90 miles along the coast road so that it was quite late when I reached Williamsfield House. I had a very warm welcome from my hosts and found nothing had changed since my previous visit 2½ years before. This was the period of heavy rains and we had a cloudburst my first night, but each morning the skies cleared and we were able to see what was on the wing. I was soon able to gauge several new species I had not seen in 1971 and most of these appeared in the garden of Williamsfield House. On the 8th, another fine day after rain, I had my first sighting of that very prevalent West Indian Swallowtail, *Battus polydamas jamaicensis* Rothschild & Jordan. This fine local form kept appearing on the rough bank below my host's garden, but was by no means easy to waylay, as they seldom settled. But even more spectacular were the males of the bright yellow *Papilio thersites* Fab., an endemic species with an expanse of five inches. This grand insect was to be seen dashing about at great speed and almost impossible to net on the wing. A good many of the butterflies seen in 1971 were again apparent in the garden, especially the delightful little Nymphaline *Mestra dorcas* Fab., while *Dryas julia delila* Fab. was dashing about accompanied by an occasional *Siproeta stelenes* L. lazily sailing from tree to tree. I revisited my old haunts round the area of the house on the edge of the San San estate and saw several species of the commoner Euremas, notably *E. nise* Cramer, *E. messalina* Fab. and *E. lisa euterpe* Ménétrière. On the very warm afternoon of the 9th my hosts motored me to Rosselle Falls which was halfway between Port Antonio and Kingston. It was very sweltering at quite 90°F. in the shade when we climbed on to the plateau and saw most of the species already noted in the garden with the addition of *canaus gilippus jamaicensis* Bates and the Fritillary *Euptoieta hegesia* Cramer, but our main quarry the small endemic Swallowtail, *Graphium marcellinus* Doubleday, did not put in an appearance, though it had been prevalent in this area a few years previously. En route we had stopped near a banana

plantation where we caught sight of the huge nyphaline *Historis odius* Fab., also with an expanse of five inches. However, the following morning in the garden we were treated to a fine sight when one of this grand insect came to feed on a fallen and very over ripe bread fruit, but it was virtually unapproachable. The little blue *Leptotes cassius theonus* Lucas was swarming in the garden slope together with a few *Hemiargus hanno* Fab. and a sporadic Hairstreak *Strymon columella cybira* Hewitson. The lights of the Dragon Plaza below the house were quite productive on the 11th with several species of Sphinges and other desirable night-flying species. Good Friday, 12th April, was an eventful day when in the heat of the afternoon we visited a spot called ironically Happy Hill in the direction of Port Morant. After seeing quite a galaxy of insects mainly species generally prevalent, the locality did not live up to its name as our car broke down on a very deserted route and we had to walk back the $2\frac{1}{2}$ miles to the main road where a taxi rescued us and we only got back at 10 p.m. On Easter Sunday we had a visit from Mr. Derek Stone, a very keen collector, who kindly invited us back to his house on the San San estate where we looked in vain for species of Phyciodes. My host had a free day from his medical duties on 16th April, another very warm occasion when we were tempted further afield to the edge of the Blue Mountains.

We travelled up the broad valley of the Rio Grande, to near Moortown, then up a very bumpy road through Millbrook till it ended at a very wild spot called Four Feet. En route we had seen *H. odius* and a number of *P. battus*. At our final halting ground we were in the area where that splendid insect *Papilio homerus* Fab., had often been seen, but none obliged that day. However I have heard recently from Dr. Goodall, that he and Dr. Turner were treated in August 1974 to a fine sight of a fair number of this wonderful butterfly flying high up in a remote part of these mountains. Before we left we saw a large flight of the endemic green parrot emanating from the forests of the Blue Mountains. 17th April saw the reappearance of *H. odius* on the garden breadfruit, but it was always very wary. The first of the little endemic nymphaline *Dynamine egea* Fab. were seen with its dimorphic sexes. On the afternoon of the 18th we penetrated to a very secluded part of the San San Estate which had proved so fruitful in 1971 and it was not less so on this occasion as after trying to take several *Papilio thersites* on the wing I spotted a pair about to mate on the ground, including the magnificent black female which managed to escape. However the male was quite a prize. It was at this period that a number of Skippers of various species were seen. Notably in this locality we saw another endemic species of large size and deep purple brown in colour, *Astraptus jaira* Butler, never a common insect. The next two days were fine and warm but most collecting was done in my host's garden where the fine large females of *B. polydamas* were now becoming more prevalent. The next morning of the 21st saw us once

more on the San San estate where in a friend's garden Dr. Goodall just missed another pair of *P. thersites*. Another very warm day broke upon us on 22nd April. In the drive leading to the garden I swept off a small Lycaenid which proved to be the rather scarce little *Strymon bazochii gundlachianus* Bates, named Gundlach's Hairstreak, but a greater prize awaited later that day when I netted a large papilio in the garden which turned out to be the female of *Papilio pelaus* Fab. which is seldom seen and much more difficult to obtain than the male, especially in good condition as this example was. 23rd April was another scorcher at 88°F. in the shade when I accompanied Charles Goodall again to our special spot on the San San Estate where *P. thersites* were again careering round with plenty of *Heliconia charitonius simulator* Röber. In the morning I had spotted a spectacular moth on one of the pillars of the verandah of my host's house. It proved to be the very special endemic Hypsid which has recently been named *Stenognatha toddi* Watson of which quite a number of specimens have now been recorded from many parts of eastern Jamaica. We set out early on the 24th intending to penetrate the mountains, but unfortunately another car disorder prevented our going as far as we had intended so we diverged from the main coastal road along a side route in the direction of Haining, where the chance capture of a small blue by Helen Goodall proved to be a female of the very local endemic species *Leptotes perkinsae* Kaye.

The next three very warm days I concentrated on the lepidopterous inhabitants of the garden of my hosts which as in 1971 was possibly the most productive area I had met. Here the ubiquitous *Dione vanillae* L. was abundant skimming low over the herbage with almost as many *Precis evarete zonalis* Felder, always very wary and none too easy to net. The Skippers seemed to be more numerous and were engaging our attention. On 26th April, we netted a fine pair of the large brown tailless species with small transparent spots, *Euphyes singularis insolata* Butler. The next day we had the excitement of seeing but just missing a huge black female of *Papilio thersites* which dashed passed the house. The same afternoon another visitor was the large endemic brown and yellow Skipper *Pyrrhocalles jamaicensis* Schaus which was flitting about the flowers and very difficult to follow on the wing. That fine large all yellow *Eurema dina parvumbra* Kaye also put in an appearance. These nights too were quite productive both on the verandah of the house and at the Dragon Plaza centre with several huge Sphinges including *Pachylia ficus* L. and many interesting Arctiids, which will be enumerated later.

On 28th April I set out by car with my hosts heading for Kingston. Our first stop along the coastal road was once more at the Rosselle Falls, where little of note was on the wing. However, as we neared the pass known as White Horses, there was a sudden wealth of insects on the wing. The chief and most spectacular species was the great Brimstone-like species *Anteos maerula* Fab. which was careering about the bush on

the main road, but most dodgy for catching. Several *Papilio andraemon* Hübn. were about, the first seen on this visit, together with a few *B. polydamas*. An unexpected capture was a somewhat worn *Historis acheronta cadmus* Cramer, only slightly smaller than *H. odius*. We reached Kingston in the early afternoon when we had a warm welcome from Dr. Tom Turner whose grand collection of Jamaican butterflies we feasted over. Later that day he took us to the north of the capital to Stony Hill where, though very windy, several large Skippers were flying including *Aguna asander jasper* Evans. We put up that night at the Mona House Hotel. Helen and Charles Goodall motored back to Port Antonio the next morning when in great heat I collected in some fine rough ground behind the hotel. This produced many *P. andraemon* and *B. polydamas*, though difficult to follow among the dense growth, as also was *Callisto zangis*. A Nymphaline not seen before was *Marpesia elucea pellenis* Godart.

That evening, 29th April, I left by air and was back in England early on the 30th after yet another most enjoyable and profitable sojourn in Jamaica thanks to the kindness and hospitality of my hosts at Williamsfield House. I have thought it once more of interest to enumerate so far as possible the species of butterflies and moths we recorded, a good many of which we also saw in 1971, but many of these were in new localities. But we also saw quite a number of butterflies not noted in the earlier list and these are marked with an asterisk. Williamsfield House is indicated by the letters W.H.

The nomenclature is taken from *Jamaica and its Butterflies* by Martin Brown and B. Heineman, published in 1972.

BUTTERFLIES

Papilionidae

Papilio andraemon Hübn. Only seen on this occasion in and near Kingston.

**Papilio thersites* Fab. Fairly numerous at W.H. and on the San San Estate and also seen near Morant Bay. A few females noted.

Papilio pelaus pelaus Fab. One female taken at W.H., 22nd April.

Battus polydamas jamaicensis Rothschild & Jordan. Plentiful round W.H. in both sexes and almost in every other locality visited.

Pieridae

Ascia monuste eubotea Godart. Mainly seen in numbers near Boston.

Eurema elathea Cramer. Few seen at White Horses on 28th April.

Eurema messalina messalina Fab. Numerous round W.H.

Eurema dina parvumbra Kaye. One taken at W.H. and another on San San.

Eurema lisa euterpe Ménétrière. Quite numerous at W.H. and in district.

Eurema nise nise Cramer. Almost as prevalent as the foregoing.

Phoebis sennae sennae L. Plentiful at W.H. and almost everywhere else, including Kingston.

**Anteos maerula maerula* Fab. Many seen at White Horses near Kingston on 28th April.

Satyridae

Callisto zangis Fab. Only seen at San San and at Kingston.

Danaidae

Danaus gilippus berenice Cramer. Seen singly at Rosselle Falls and at Boston.

Heliconidae

Dione vanillae L. Plentiful at W.H. but not seen much anywhere else.

Dryas julia delila Fab. Seen mainly at W.H. and also at San San.

Heliconius charitonius simulator Röber. Few at W.H. and in most other localities, including Mona Hotel, Kingston.

Nymphalidae

**Marpesia eleuthea pellenis* Godart. A worn specimen taken on 29th April in the vicinity of the Mona Hotel, near Kingston.

Historis odius odius Fab. Seen on several occasions at W.H., also near Rosselle Falls and at Millbrook.

Historis acheronta cadmus Fab. One worn specimen taken near White Horses.

Mestra dorcas Fab. Numerous at W.H. and abundant in parts of San San and elsewhere, especially near Haining.

Dynamine egea egea Fab. Only seen in and near W.H. grounds.

Precis evarete zonalis Felder (= *lavinia* L.). Fairly numerous at W.H. and on San San estate.

Anartia jatropha jamaicensis Möschler. Seen almost everywhere but never in numbers. Few at W.H.

Siproeta stelenes stelenes L. Occasionally at W.H. and on San San. Never common.

Euptoieta hegesia hegesia Cramer. Only seen at Rosselle Falls.

Lycaenidae

Strymon columella cybira Hewitson. Few only seen in garden of W.H.

**Strymon bazochii gundlachianus* D. Bates. Three seen and taken at W.H.

Leptotes cassius theonus Lucas. Abundant at W.H. and most other localities.

**Leptotes perkinsae* Kaye. One female of this rare insect taken at Haining on 24th April.

Hemiargus hanno ceraunus Fab. A few at W.H. but not generally common.

Hesperiidae

Urbanus proteus L. A few seen at W.H.

- **Aguna asander jasper* Evans. Seen only at Stony Hill, north of Kingston, on 28th April.
- **Astraptus jaira* Butler. Taken only singly on San San.
- **Caberes potrillo potrillo* Lucas. Taken at Rosselle Falls area.
- Gesta gesta gesta* Herrich-Schäffer. Seen at Boston and on San San.
- Pyrgus oileus* L. Numerous at W.H. and in most other localities.
- **Pyrrhocalles jamaicensis* Schaus. Few seen only in garden at W.H.
- Cymene tripunctus tripunctus* Herrich-Schäffer. Seen in numbers near Boston.
- **Wallengrenia otho vesura* Plötz. A few at W.H. and on San San.
- **Euphyes singularis insolata* Butler. Three or four seen or taken but only at W.H.

MOTHS

All the moths enumerated below were taken at Williams-field House or at the lights at the Dragon Plaza nearby.

Sphingidae

Manduca sexta L., *Manduca brontes* Drury, **Pachylia ficus* L., *Eumorpha satellitia* L., *Enyo lugubris* L., *Xylophanes tersa* L.

Syntomidae

Empyreuma anassa Forbes, **Uraga haemorrhoea* Wkr., *Cosmosoma* spec. near *annexa* H.-S., *Lymnre melanocephala* Wkr.

Hypsiidae

Stenognatha toddi Watson.

Arctiidae

Idalus delicata Möschler, *Ammalo helops* Cramer, *Ecpantheria nigroplaga* Wkr.

Notodontidae

**Hippia lignosa* Möschler.

Drepanidae

**Drepanodes moneta* Druce.

Noctuidae

Asclapha odorata Linn., *Teinoletis simoenta* Guen., *Panula inconstans* Guen., *Aglaonice otignatha* Hamps., **Bendis formularis* Hübn., **Perigea plagiata* Wkr., **Spodoptera eridania* Stoll, **Gonodonta incurva* Sepp., **Dagassa aequalis* Wkr., **Epidromia zetophora* Guen., **Mocis latipes* Guen., **Mocis repanda* Fab., *Cydosia nobilitella* Cramer, **Eulepidotis addens* Wkr., **Epitomiptera orneodalis* Guen.

Geometridae

**Anisodes ordinata* Wkr., *Erastria decrepitaria* Hübn., *Iridopsis vicaria* Wkr.

Cossidae

**Xyleutes jamaicensis* Wkr.

Pyralidae

PYRUSTINAE: *Boeotarcha stimosalis* Warren, *Maruca testulalis* Geyer, *Sylepta prorogata* Hamps., *Sylepta candacalis* Felder, *Phostria apicalis* Lederer.

CHRYSOAUGINAE: *Bonchis munitalis* Lederer, *Megastes brunnealis* Hamps.

In addition, there was a sizeable Notodontid, a small Noctuid and a small Cossid to which names could not be given by the Museum authorities and which may well prove to be undescribed species.

As in 1971, I have had much valuable help in identifying the insects from members of the staff of the British Museum (Natural History) at South Kensington, to whom I would like to express especial thanks for all the trouble they have taken and in particular I would mention Mr. Alan Hayes, Mr. T. G. Howarth, Mrs. A. M. Lane (Miss Grogan), Mr. M. Shaffer, Mr. Alan Watson and, above all, Mr. W. H. Tams who did so much to determine many difficult species, especially among the Noctuidae.

Finally, I would like to express once more my great indebtedness to my hosts Charles and Helen Goodall who did so much to make my second sojourn in Jamaica so enjoyable and so successful.

Reminiscences of a Butterfly Hunter

By the REV. J. N. MARCON

Raydale, Fittleworth, Pulborough, Sussex

A year ago an absorbing article was written by Baron C. G. M. de Worms entitled "Memories of collecting in Britain during the last fifty years" (in *Proc. Brit. Ent. Nat. Hist. Soc.*, 6(1): 1-15). It may be of further interest to recall some of the delights of the chase in the halcyon days when butterflies were common in certain localities.

For instance, my diary records 425 *Boloria euphrosyne* L. being seen in Abbots Wood in 1943; 477 *B. euphrosyne* and 998 *B. selene* in one day at Dunsfold in 1944; and nearing 500 *Argynnis adippe* D. & S. at the end of June 1943 in Vert Wood without traversing the same piece of ground. It is difficult to estimate the number of *Agriades coridon* Poda at Beachy Head in 1945; when they came off the hillside in the evening to settle on the field above the cliff-top, the corn was blue for half-an-hour or so with the expanded wings of the males; 100,000 or a quarter of a million? It is anybody's guess.

I began collecting enthusiastically in 1921. It soon became clear that the time was not available for butterflies and moths. If in 50 odd years I was fortunate in securing a fairish number of aberrations it must largely be attributed to the "luck of the game", an urge to explore adjacent territory and a determination to persist once a good butterfly had been spotted come what may — characteristics which are commonplace with every serious bug-hunter. On one occasion an insect (a melanic male *Argynnis paphia* L.) took eight hours to catch — three of one day, five of the next. Another time it was 2½ days of unremitting search after a prize had been sighted (a black forewing

female *adippe*) before it was safely inside a pill-box. What revealed it was a doodle-bug exploding in the next field, which lifted me off the ground as I was lying flat: but the displacement of air had a satisfying effect, for within ten yards there was the treasure I had been searching for so long. Next year there was a male of exactly similar pattern in the same place, without the V!

A. coridon used to be favoured butterfly because of its large range of variation. Royston, and prior to that Princes Risborough, were favoured haunts—the latter for the large percentage of *f. syngrapha* found there. My visits to these localities were only when their hey-day was passed. But I was fortunate in living at Worthing soon after the Down near Shoreham was beginning to excite interest. *Coridon* were plentiful in the years before, during and to some extent after the Second World War (in fact it was at this latter period that the very best butterfly found there—an extrema female *coridon*—was taken by R. E. Stockley—a superb insect in prime condition). At Beeding they were so thick that in the evening at rest on the grasses it took an hour-and-a-half to search through 100 yards of the teeming butterflies. It was in these places that one would meet Castle Russell, Clifford Wells, Percy Bright cum chauffeur, Major Collier, Woollett, Labouchere, Hyde, Tetley, the two Crasques, Major-Gen. Lipscomb, Stockley, Ford, the Rev. Edwards, Col. Burkhardt and a number of other collectors.

Nearly everyone caught something and a real gem was the talk of everyone for the rest of the morning. Often some of us used to work the Erringham Down in the morning, go back to a late lunch, rest for an hour or two and then make over to Beeding from 4 p.m. until supper time. My share of the spoils in these two places was a halved gynandro, an extreme gynandro, a fine ab. *ultra-radiata* male, seven male ab. *melaina*, 18 ab. *pulla*, six ab. *viridiscens* and three ab. *livida*.

One used to favour the low-lying area of a down or wood as, one imagined, here there was a chance that a sudden drop in temperature at the critical stage in the insect's development, which might result in an aberration, was more likely to occur—more scientific men would say, what rubbish! On one occasion all the collectors were either on or below the central path that runs across the down. I had fruitlessly searched there so climbed the steep bank above. There were rabbit-warrens at one end, and on traversing back and forth higher and higher each of three times I reached them there was a *pulla* or *melaina*.

But this was not always the case. Chartres took a superb gynandro *Agriades bellargus* Rott. on the top of the hill at Lewes. "I noticed," he said, "what appeared to be two males *in cop*." A counter to this was the day after war was declared in 1939. Chartres was there two hours before me, high up. I concentrated on the lower slopes and secured five varying forms of ab. *radiata* (two with only one wing of this sort) that

evening. A female ab. *extrema* in June a few years later on the same group of downs was another taken from the crest of the hill. It was after 7 p.m. and she would not settle. The white of the hindwings helped to keep it in view amongst others as she flew backwards and forwards near a clump of bushes. Fearful that she might escape over them and reaching the stage of near exhaustion I had to make a bid for her. Edging closer and closer and poised to strike, almost in desperation, at last I waved the net and happily she was inside—a monster! A few days later, 12th June, in the same spot a fine ab. *polonus* came my way.

At Beachy Head in 1945 Chartres netted a beautiful male *coridon* ab. *extrema*. It was worth cycling up every available evening from the far end of Eastbourne in mid-to-end July (this was an exceptionally early year). One of my more fortunate days was when walking along the edge of the corn, just after the resting *coridon* had taken up their night quarters and closed their wings. Peering in three or four yards amongst the serried ranks there was a female underside which seemed slightly odd, but one could not say why. The remote chance of something out of the ordinary necessitated a sweep of the net. At once there was a flash of blue not brown; what could it be? The heart beat a tick or two faster. It was a halved gynandro. Time was elapsing and I must get home: walking hurriedly along the track I noticed an ab. *ultra-radiata* male perched. It did not take long to change its resting place! A slight ab. *albescens extrema* female completed the season's excitement.

The New Forest was a favourite hunting ground most years from 1924-1943. Latterly, Mr. and Mrs. Clarke used to offer me hospitality at Brockenhurst. I was fortunate to spend seven days there in 1941 and 1942, when *Argynnis paphia* L. showed considerable variation—a rare occurrence. The previous occasion had been 1918 and 1919; and prior to that, I am told, two years in the 1880s. My bag was six male and female *A. paphia* ab. *melaina*, eight ab. *confluens* of both sexes and eight *Ladoga camilla* L. ab. *nigrina* or ab. *semi-nigrina*.

The years up to 1956 were a bonanza to the variety hunter, for each year there was at least one prolific species if one was luck enough to hit upon it. I was fortunate in securing an *Polyommatus icarus* Rott. ab. *opalizans* on the north face of the South Downs; a smoky *Melanargia galatea* L. at Lulworth Cove when hunting for *Thymelicus actaeon* Rott.; a halved gynandro of this species when looking for *Maculinea arion* L. in the Cotswolds, being directed by another collector to a nearby spot and swinging my net at a few *galatea* on approaching it; a halved gynandro *bellargus* when down at Folkestone for the day, to find 8-10 other nets at work; a fine melanic *aglaia*, three almost black *selene* and eight albino *Maniola jurtine* L., one of the loveliest insects to see flying and visible amongst its fellows 50 yards away. I was also fortunate in securing three *Polygonia c-album* L. ab. *nigrocaria*. Perhaps the most gratify-

ing piece of good fortune was an *A. adippe* ab. *ultra-charlotta*. The sun had gone in and 8-10 *adippe* parked themselves on bracken with wings outspread. One appeared to have confluent markings. All took wing as I approached except my quarry which hesitated. When barely within range it rose, but with a long stretch of arm it was netted.

What a wonderful pastime we have, even though agriculture, afforestation, pesticides and cattle have divested large tracts of our enjoyment. I cannot complain, but rather be thankful for a rewarding hobby which renewed one's strength in times of stress and increased one's appreciation of the glory of nature.

Isle of Canna Report, 1972-1974

By J. L. CAMPBELL

Canna House, Isle of Canna, Scotland, PH44 4RS

Except for a very fine April in 1974, and a short spell after midsummer, these three years have produced little really fine weather in the Hebrides, and we still look back to 1968 as the last really good summer we have had. On 30th June 1972, for example, I wrote in my dairy "End of coldest, wettest, stormiest June remembered", and on 18th July the same year "Saw first Meadow Brown. But the scarcity of butterflies in the most favourable places, rather their entire absence, is depressing. Occasional *brassicae* or *napi* in gardens is all".

1972 is distinguished as the only year in my Hebridean experience, which goes back to 1933, in which absolutely no migrants of any kind were observed at all. However, I am glad to say that after the very fine April of 1974, the butterflies revived in numbers very considerably.

Migrants. On 7/1/73 the moth trap produced a very fine specimen of *M. (L.) unipuncta* Haw., already reported in the *Record*, Vol. 85, p. 107. The moth may have bred here, as a fresh specimen was taken in the trap on 20th September and three more on the 22nd. One of these is now in the Royal Scottish Museum.

A dark specimen of *E. occulta* L. was taken in the trap on 25/7/73. *V. atalanta* L. first appeared on 26th June and was seen singly on six occasions, including a pupa on 25/8/73, until late September when two or three were seen on the 19th, 20th and 22nd. Only one specimen of *P. cardui* L. was seen. This was in my garden from 5th to 11th August and what was obviously the same specimen was seen again in the Haligary gulley about half a mile to the east, on the 14th. *P. gamma* L. was first observed on 2nd June, ten pale specimens were recorded up to 21st August, 16 or 17 dark fresh ones between 29/8/73 and 16/9/73.

In 1974, *atalanta* appeared first on 8th June, and was decidedly commoner than in 1973, 30 specimens being observed between then and the end of September, as well as a con-

siderable number of larvae in late July and early August, some of which I reared. But again, I only noticed one specimen of *cardui*, near the shore at Coroghon Bay on 9th September. *Gamma* was not noticed until 22nd August, and only four specimens in all were observed, singly between then and 15th September. On 24/4/74 there was a specimen of *A. ypsilon* Rott. in the m.v. trap.

P. aegeria L. continues to turn up singly once or twice a year. The records for this period are 14th and 27th August 1972, in the Haligary gully; 21st August 1973, same place, and 25/8/73, in the wood near Tighard, probably the same specimen; 22/7/74, a worn specimen in my garden, seen again on 3rd August, a day when a fresh specimen was also seen sitting on the library window-sill. Searches were made in the woods in all three summers under consideration, but no other specimens were noticed.

Z. purpuralis. Not a single specimen was to be seen on the Tallabrig cliffs of Sanday, the main locality here, on 27/7/72, 6/7/73, or 17/7/73, and only one on 27/7/73; the weather has been bad during the emergence period of this moth for several years from 1970. But on 27/6/74 it was observed to be about on the cliffs again. In 1972 however it was seen several times in the Haligary gully between 21st July and 15th August in a spot where 12 mated pairs from Tallabrig had been released in 1968; but it was not noticed there again in 1973 or 1974.

B. selene L. was seen twice in 1972, on 13th June in the Haligary gully, and on 27th July on the Talabrig cliffs. It has not been noticed in 1973 or 1974; nor was *C. rubi* L., which was last observed at the foot of the Haligary gully on 11/6/72.

The moth trap produced 4,607 specimens in 1972, on 37 nights, 5,066 in 1973 on 55 nights, and only 2,458 in 1974 on 47 nights. The last reduced figure was partly due to a fuel-saving reduction in diesel running hours, but after April in 1974 there were very few good trapping nights, even the better spells of weather being windy and showery.

The only new species taken during these three years is *M. oxycanthae*, taken on 1/10/74. Other species of interest, besides the migrants already mentioned, were *C. potatoria*, three males taken on 17/7/73; I have only taken three specimens, all males, here previously, one each in 1949, 1963 and 1969, the first picked up dead on the road. *D. coryli* L., one on 5/5/72 and one on 18/5/72; only taken twice before, in 1961 and 1968. *C. furcula*, 17/6/74, only taken once before, in 1969. *A. aversata*, 20/7/72, only taken twice before, 1963, 1965. *A. fumata* Steph., 29/6/74, only once before (not in trap) in 1945. *E. prosapiaria* L. has turned up each of these three summers, and is probably established on the island by now.

The exceptionally fine April of 1974 produced 932 moths on 12 nights and would have produced more had I not had to leave the island on the 25th. This has only been approached

in my experience by the April of 1964 when 626 moths were taken on four nights in the second half of the month, including 259 on 18/4/64. In 1974 the largest number on a single night was 144 on the 9th, including two specimens of *D. vinula* 15 days earlier than the previous earliest (24/4/64).

D. vinula was not the only unusually early capture in the trap in April 1974. No fewer than 12 species which had never been captured in April before, were taken then, on an average about two weeks earlier than the earliest previous capture (the trap having been worked here since the summer of 1951). The unusually early species were:—

M. rubi L., 15/5/74, previous earliest 30/5/64, '68.

S. menthastri Esp., 18/4/74, previous earliest 5/5/53.

A. menyanthidis View., 22/4/74, previous earliest 17/5/52; first capture since 1968.

N. plecta L., 22/4/74, previous earliest 7/5/71.

M. thalassina Rott., 24/4/74, previous earliest 5/5/69, '71.

M. glauca Hübn., 22/4/74, previous earliest 5/5/69.

M. dentina Esp., 23/4/74, previous earliest 5/5/69, '71.

D. conspersa Esp., 16/4/74, previous earliest 2/5/55, '69.

D. capsicola Hübn., 7/5/74, previous earliest 12/5/57, '59.

C. umbratica L., 22/4/74, previous earliest 2/5/69.

A. tripartita Hufn., 23/4/74, previous earliest 6/5/69.

C. designata Rott., 22/4/74, previous earliest 3/5/57.

S. bilunaria Esp., 18/4/74, previous earliest 25/4/65.

G. bidentata Clerck, 23/4/74, previous earliest 8/5/53.

The butterflies also benefitted greatly from the exceptionally fine April of 1974. There were no April hail showers to destroy the newly hatched larvae of *V. urticae*, of which hundreds were later seen in various places, and the butterfly, which at one time was hardly to be seen on Canna, became commoner than at any time since 1947. *P. brassicae* was abundant; *A. aglaia* was seen several times around the buddleia in my garden, which has never happened before; *P. napi*, *C. pamphilus* and *P. icarus* were common in the usual places; *S. semele* and *M. jurtina* were more numerous than for a long time. At least the summer of 1974 produced a revival of the island's butterflies; but after so much wind and rain in the last few years, a summer like that of 1968 would be more than welcome.

Observations on Plant Associations of the Psilidae (Diptera)

By P. J. CHANDLER

Weston Research Laboratories, 644, Bath Road, Taplow,
Maidenhead, Berks.

The Psilidae are a small family of Acalypterate flies, whose identification is relatively easy, using the key by Collin (1944). Only one additional British species has been recorded since that date, by Wakerley (1959), bringing the total to 29. The phytophagous habit of the larvae has long been known as one of them (*Psila rosae* F.) is the Carrot Fly. Various authors have commented on plant associations of other species and these were summarised by Brindle (1965) who keyed the larvae of three species, representing the three genera. He was apparently unaware of the work of Osborne (1961) who compared the larvae and puparia of *P. rosae* and *P. nigricornis* Mg. as he stated that there were no published descriptions of the larvae of the latter.

While there is little doubt that all of the Psilidae are plant feeders, remarkably little is known even today of their biology, possibly because most of them develop in the less obvious parts of their food-plants and few feed on plants of economic importance. As I have observed probable plant associations of several species of Psilidae in recent years, it would perhaps be of interest to draw attention to some of these. The nomenclature used below follows Collin (*op. cit.*).

Chyliza species. Plant associations have been recorded for three of the five British species.

C. extenuata Rossi. A rather local fly which attacks Broomrapes (*Orobanch* species). I have reared it in two successive years from puparia in the bases of the previous year's dead stems of *Orobanche elatior* Sutton in chalk grassland at Leckford, Hants. (collected in iii.1973, emerging in early v.73; then in v.1974, emerging in early vi.74). Affected stems can be easily recognised as the base is markedly swollen below ground level, apparently due to gall formation induced by the presence of the larvae. They may be accompanied (usually higher up the stem) by the Agromyzid *Phytomyza orobanchia* Kalt., but when the latter only is present no swelling occurs. Previous records of *C. extenuata* are from *Orobanche rapum-genistae* Thuill.

C. vittata Mg. This species is usually stated to attack the roots of the Bird's Nest Orchid (*Neottia nidus-avis* L.), a record attributed by Séguy (1934) to Giard (1900). Brindle (*op. cit.*) quotes the description of the larva by vos de Wilde (1935). I have taken the fly in localities where *Neottia* is unlikely to occur so it may attack other Orchids or similar plants also.

C. leptogaster Pz. This is the commonest species of *Chyliza* in this country and may be found under tree foliage or walking

about slowly, flexing its wings on low vegetation, tree trunks, logs or stumps. I have not observed any regular plant association which might throw light on its life history. Collin (*op. cit.*) quoted the formation of stem-galls on *Physocarpus opulifolius* (L.) Maxim. (Rosaceae), a southern European plant but this may refer to some other species of *Chyliza* as the taxonomy of the genus was chaotic at the time the record was made.

Loxocera species appear to be specifically associated with Juncaceae. Brindle gave an account of de Meijere's (1947) description of the early stages of this genus, found in the base of the stems of *Juncus effusus* L. which may have included *L. albiseta* Schrank as well as *L. aristata* Pz. Both species are most commonly found in this country by sweeping stands of *Juncus*; *L. albiseta* is the commoner in southern England to Lancs. and Yorks. and occurs in southern Ireland from Wicklow to Kerry but apparently doesn't reach Scotland, while *L. aristata* is common throughout Scotland and Ireland but becomes local in south-east England. Whether or not they differ in their preferences for food-plants cannot yet be said.

L. sylvatica Mg. I have now on several occasions swept this species in numbers from pure stands of the wood-rush *Luzula sylvatica* (Huds.) Gaud. and believe that there is a specific association with this plant. It has occurred on the plant at three Irish localities (Ennistymon, Co. Clare and Glendalough, Co. Wicklow, both late v.1970; Glen of the Downs, Co. Wicklow, 11.vii.1969) and three Scottish localities (Cramond Bridge, West Lothian; Den of Alyth, Perthshire and Feshie Bridge, Inverness, all late v.1973); then on 18.v.1974 a party, including Mr. A. E. Stubbs, Mr. E. G. Philp and myself, found a small colony of the fly localised to *L. sylvatica* along the margin of Farningham Wood, Kent, possibly the first record of the fly from south-east England.

Psila (Camptopsila) lefebvrei Zett. This fly is frequent in Scotland and the north of England but does not apparently reach the south-east. On 6.viii.1972 I collected several on Foxgloves (*Digitalis purpurea* L.) in the Glen More National Forest Park, Inverness, amongst sparse vegetation on a mountain stream. An association with a rush or sedge in the vicinity cannot, of course, be ruled out.

P. (Pelethophila) fimetaria L. Brindle (*op. cit.*) states that this species, the largest British Psilid (8-9 mm. long) is recorded from *Carex*, without citing the source of the record. The fly is usually found amongst low vegetation in marshy woods where several *Carex* species commonly occur so such an association is not impossible and worthy of investigation. How little is known of the Dipterous fauna of Cyperaceae is shown by recent work on the North American Scatophagidae as it has been established that all species of *Cordilura* develop in the leaf-sheaths of *Carex* species, while nothing has been known of the biology of European *Cordilura*. One species of *Cordilura* has now been reared from *Carex* in this country by Mr. A. E. Stubbs and myself and an account of this will be published

by him at a later date. *P. (P.) merdaria* Collin is a very similar fly to *P. fimetaria* and will probably be found to have a similar life-history.

P. (Psila) species. Although there are 15 British species of this sub-genus little is known of the habits of any species other than *P. rosae* and *P. nigricornis* mentioned above. Collin suggests that *P. nigricornis* as well as *P. rosae* was associated with Umbelliferae, saying both were present in cages erected on fields of carrots; Brindle, however, refers to records of *nigricornis* from the roots of cultivated Chrysanthemums, originally published by Kearns & Walton (1933) and by Osborne (1961). Several of the other species of *Psila* (*sensu stricto*) appear to be attracted to Umbelliferae or Compositae, but there is no definite evidence that any one species affects both families of plants equally. *P. rosae*, however, attacks cultivated *Brassica* species (Cruciferae) in addition to its usual Umbelliferous hosts. As Brindle noted, *P. rosae* develops not only in the roots of the cultivated species of *Daucus*, *Pastinaca* and *Apium* but also the wild *Anthriscus* and *Heracleum*; Collin recorded it from Hemlock (*Conium*).

P. pallida Fall. I have found this species on the foliage of Hogweed (*Heracleum sphondylium* L.) both at Leckford, Hants. and at Castletown, Caithness (numerous on the latter occasion) and an association is probable. I did also, however, take one female on Burdock (*Arctium*) at Bromley, Kent, so this species might possibly attack both Umbelliferae and Compositae.

P. bicolor Mg. An association with Tansy (*Tanacetum* or *Chrysanthemum vulgare* L.) was recorded on two occasions by Haliday, first from Roundstone Bay, Galway, abundantly in early August exclusively on this plant (Haliday, 1837), then again at Great Blasquet Island, Kerry, July 1854 (Hogan & Haliday, 1855). There are no specimens of *bicolor* in Haliday's collection and the possibility that the records refer to one of the similar bicoloured species cannot be discounted, but Osborne (1955, 1961) recorded both *bicolor* and *P. limbatella* Zett. from cultivated Chrysanthemums. I have only once collected *P. bicolor*, at Bromley, Kent on 16th August 1964, where the single female was walking about on the foliage of White Bryony overhanging a vigorous plant of Mugwort (*Artemisia vulgaris* L.). Being nearly related to *Chrysanthemum* and *Tanacetum*, the latter is a possible food-plant, but it is a common plant on waste ground and one might expect a fly feeding on it to be more frequent.

P. nigromaculata Strobl. Brindle noted the record of the rearing of this species from the stems of the Devil's Bit Scabious (*Succisa pratensis* Moench), originally published by Séguy. It is not often collected in Britain but should perhaps be looked for on its food-plant. It appears to be commoner in Ireland, where all records of the *P. bicolor* group (some published under the name of *P. debilis* Egger) for which specimens exist, refer to this species. *Succisa* is of general distribution there while *Tanacetum* is now more restricted there than it is in Britain.

P. humeralis Zett. Collin stated that this species is not uncommon in the Spey Valley in June. I have found it in June this year (1974) to occur more widely in Scotland, at localities in Perthshire and Aberdeenshire as well as in Inverness. At Granish, Inverness, in August 1972 I found it on *Heracleum* but at Glenfincastle, Perthshire, vi.1974, it was abundant on Sweet Cicely (*Myrrhis odorata* (L.) Scop.), so an association with various Umbelliferae may again be possible in this species.

Psila nigra Fall. and *P. atra* Mg. are both locally frequent in marshy grasslands, but these small black species are usually collected by sweeping and the variety of vegetation in localities where I have collected them has precluded any useful observations on plant associations.

A note on the *Psila rosae* group

With respect to *P. rosae* and its relatives, there are three species in this country, distinguishable by the structure of the male genitalia. The hypopygia are figured for *rosae* and *nigricornis* by Collin; Wakerley figured his new species *persimilis* and the aedeagus of these three and of *humeralis*, because *persimilis* was found by him to vary in colour so that some specimens approach that species. Lyneborg (1964) figured the entire hypopygium of the three species of this group.

I have dissected the 18 males in my collection, which agreed in body colour with *rosae*. Of these, 14 were *P. rosae*, only four which were of a weak-bodied almost teneral appearance by comparison with the other 14 belonged to the other species. One from Chislehurst, Kent was *P. nigricornis* while two from Ireland (Dunamarc Falls, Cork, 14.x.73 and Muckcross, Kerry, 2.vii.69) and one from the French Pyrenees (Ussat-les-Bains, Ariège, 26.v.71) belonged to *P. persimilis*. I quote these records as I am not aware of records of *persimilis* other than those published by Wakerley from Northumberland and Durham and Lyneborg (*op. cit.*) from Denmark. It is possible that I have selected more *rosae* than *nigricornis* from my net, if it is usually a more robust species, as Collin found *nigricornis* to be commoner at times.

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Interspecific Competition and the History of *Pieris rapae* in North America

By DR. A. M. SHAPIRO

Department of Zoology, University of California, Davis,
California, U.S.A. 95616

Workers on a particular group of organisms often engage in discussions of quite general phenomena while maintaining a rigid parochialism. The recent discussion of interspecific competition in butterflies between Messrs. Sevastopoulo (1973), *Ent. Rec.*, 85: 247) and Luckens (1974, *Ent. Rec.*, 86: 71-72) is a case in point; although Luckens refers to competition as a recognised concept "in all fields of zoology", both by and large act as though butterflies were likely to be unique among living things in their competitive relationships (or lack of them). Yet interspecific competition has engaged the attention of both field and theoretical ecologists and has been studied in vertebrates, invertebrates, plants and microorganisms, and the literature of the subject is immense! A commonly held view among American ecologists is that interspecific competition is a very important organising force in biotic communities, acting on at least two levels: firstly, in cases where niche overlap is initially very great, by direct exclusion in ecological time; secondly, promoting divergence of the niches of partial competitors through natural selection in evolutionary time. Opponents of the concept of interspecific competition often point to the seeming rarity of documented instances in nature; its supporters observe that by their view episodes of competition are transient, leading to exclusion or ecological divergence, so that in most cases organisms in stable communities will already have divided up their resources before we ever get a look at them.

The most important instances for the study of processes operating in competition occur when species are introduced, as on a new continent, and their interactions with the pre-existing biota may be observed. An excellently documented case concerns the deliberately introduced entomophagous Hymenoptera of the genus *Aphytis* (DeBach and Sundby, 1963, *Hilgardia*, **34**: 105/166). Even here the actual mechanism of exclusion is not understood, if the fact of exclusion is undeniable. Unhappily, many much less well-documented examples have gained unwarranted currency in the literature, and one of these is the case of *Pieris* in North America, cited by Luckens.

I do not propose to trace the history of this reputed interaction in the literature in this note, but very briefly the facts are these: *Pieris rapae* L. arrived in North America uninvited about 1860 and in the next several decades various authors recorded the decline and disappearance of the native species, *P. napi* L. and *P. protodice* Boisduval and LeConte, which many of them were inclined to attribute to the arrival of the immigrant. It seems clear that *napi* did disappear at least in parts of southern New England and western New York. It is equally clear that where the forest cover remained virtually intact, *napi* showed no such diminution even in the north-eastern states, nor anywhere in the west. Hovanitz (1962, *J. Res. Lepid.*, **1**: 77) argues quite plausibly that the decline of *napi* was occasioned by removal of the forest with advancing agriculture and urbanisation. However, we do have to account for the known presence of *napi* in such places as Harvard Yard, which had been in an unnatural state for very many years, and from which *napi* disappeared supposedly with the advent of *rapae*. I do not see any difficulty with this. In much of its Holarctic range *P. napi* occurs in open as well as forested habitats—in Britain it, not *rapae*, is found in sedgy swales, for example. In the absence of any competitor it undoubtedly moved out of the still-nearby forests into agricultural and urban New England, and was able to thrive until *rapae*, which was preadapted to such habitats, displaced it from them. *Napi* today is probably restricted to the habitats it held in the north east before the white man came—habitats now much reduced in area; those from it was ultimately ousted were man's doing in the first place, and *napi* was, for a few decades, a beneficiary of civilisation before it became its casualty.

Pieris protodice is quite another matter; I have been unable to find grounds to accept that it has been restricted either ecologically or geographically by *rapae*. *Protodice* is a *Pontia*, with the usual preferences of that subgenus; ecologically it is very nearly the equivalent of the European *daplidice* L. In the summer-arid and semi-arid parts of North America it is everywhere the most abundant *Pieris*, at least below 1,500-2,000m, yielding to *rapae* only where agricultural irrigation is widespread or winters are cold or very humid or both. In the north east it is virtually restricted to the sunniest, driest, hottest places:

in fact it is today very abundant in railway switch-yards, urban vacant lots, and the like — places where Lepidopterists seldom go, so *protodice* does not appear on their lists. I have seen it flying by thousands in the very places where William Beutenmuller saw it in New Jersey 75 years before; yet F. M. Brown's New Jersey correspondents assured him it is virtually extinct in that state (Brown, 1973, *Trans. Amer. Ent. Soc.*, **99**:107)! That it is climatically restricted is graphically demonstrated by its consistent inability to overwinter on the Piedmont a few kilometres north and west of Philadelphia, although it does so regularly on the Atlantic Coastal Plain within and south-east of the city. Similarly, it occurs abundantly about New York City in the boroughs of Queens and Kings (Brooklyn), which are on Long Island, and on Staten Island, but not on the adjacent mainland.

In Europe *Pieris rapae* occupies an ecological position intermediate between *P. napi* on one hand and *P. daplidice* on the other. In North America, where no corresponding species occurred, it has fit itself in between *napi* and *protodice* in similar fashion. In the absence of careful historical documentation it would be quite impossible to discriminate between the situation on the Continent, where the three species have presumably coevolved over a very long time, and in the U.S.A. where they have not. As usually happens the historical opportunity was largely missed, and the case requires a somewhat more cautious interpretation than that of Klots. This is all the more important since it has now gained entry to the British literature and could become proverbial there even as its significance is being revaluated at home; at any rate the reality or unreality of competition (even in one taxonomic group) should not ride on the fate of any particular example!

To return to more general matters, the argument that herbivores cannot be in competition because they do not defoliate plants was at the heart of a noteworthy exchange in the ecological journals several years ago (Hairston, Smith, Slobodkin, 1960, *Amer. Naturalist*, **94**: 421-425; Murdoch, 1966, *Ibid.*, **100**: 219-226; Ehrlich and Birch, 1967, *Ibid.*, **101**: 97-101). In this exchange it was pointed out that, for biochemical or other reasons, the amount of foliage we observe is not necessarily the same as the amount "available" to an animal. In a recent study (now in press) I examined temporarily sympatric populations of *Pieris protodice* and *P. occidentalis* Reakirt feeding on the same species of pepper-grass (*Lepidium*). Although the overall impact of both species on the plant population was minute, oviposition was very clearly non-random, with females of both species preferring isolated plants and those at the edges of dense stands, and these were commonly defoliated although the plants within the stands were untouched. I am certainly not willing to say there were "Cruciferae enough for all"!

Notes on British Butterflies: Spring and Early Summer 1974

By DR. C. J. LUCKENS

52, Thorold Road, Bitterne Park, Southampton, SO2 4JG

A fine sunny day on 16th March brought the first Spring butterflies out when about 20 *Gonepteryx rhamni* L. and a lone *Brephos parthenias* L. were seen in a Romsey wood. *Nymphalis io* L. and *Aglaia urticae* L. did not put in an appearance until about a week later, but were flying freely in our Southampton garden by the end of the month.

My elder son came with me to the Isle of Wight on 29th March where we saw numerous larvae of *Melitea cinxia* L. out in the weak sunlight on the Undercliff. On the way back we saw a Water Rail in a ditch in the middle of Niton — an unusual location for such a secretive bird.

Polygonia c-album L. appeared in our garden during the first days of April, and by mid-month *Pararge aegeria* L. and the three Spring Whites had joined them.

A very early male *Antocharis cardamines* L. was seen flying along the road near Isfield in Sussex on 20th April but the main emergence was not until the usual time in early May — in Southern Hampshire at least. I went to look at a wood near Eastleigh on 15th May where 80% of the *cardamines* population are said to be dwarfed. The few Orange Tips on the wing were certainly smaller than typical specimens, but the small numbers precluded a significant assessment of frequency.

Plenty of *Hamearis lucina* L. were flying in a favourite wood near Winchester two days later, and the females were already ovipositing. *Clossiana euphrosyne* L. was fairly common in the coppiced areas and there were a few *Pyrgus malvae* L. and *Erynnis tages* L. about also.

Beating Blackthorns caused me to get very wet indeed when I visited an Oxfordshire locality for *Strymonidia pruni* L. on a showery 24th May. A few larvae of this local hairstreak were obtained. Not far away male *Euphydryas aurinia* Rott. were flying in fair numbers during the spells of bright sunshine.

The Whitparish woods on the Bank Holiday Monday held good numbers of *C. euphrosyne*, and also a few *C. selene* D. and S., but I was surprised to find I had the place to myself as far as fellow lepidopterists were concerned. Nearby, on Pepperbox Hill, *Coenonympha pamphilus* L., *Polyommatus icarus* Rott., *P. malvae*, *E. tages* and a solitary female *Cupido minimus* Fuessl. were on the wing.

Single specimens of *minimus* were also flying on the downs near Winchester on 30th May; here at least the food plant is abundant, whereas on Pepperbox the Kidney vetch is very sparse.

I drove up to the Midlands on the last day of the month, and staying with friends near Leicester spent a couple of days searching for *Carterocephalus palaemon* Pall. On the way north,

I dropped into an Oxford locality for *E. aurinia* in order to release a large number that I had bred from this same stock. A quick look also, at a favourite ride in Salcey Forest, revealed an excellent showing of *Leptidea sinapis* L. But I drew a blank for *palaemon*, though I searched assiduously several areas where it was seen as recently 1969. Some sites looked suitable, and my expectations remained high — specimens of *Lycaena phlaeas* L., half-glimpsed in the sunlight caused severe palpitations on two occasions!

Warm sunny weather was the rule in early June, and I was able to make several visits to a wood a few miles outside Southampton. *C. euphrosyne* and *C. selene* were still out in fair numbers, the first *Vanessa cardui* L. was seen, and a few larvae of *Thecla betulae* L. were obtained from blackthorns. In Southampton itself, *Ochlodes venata* Br. and Grey appeared in our garden on 10th June, and also many *cardamines* larvae on Sweet Rocket in the borders. I had never before seen Orange Tips flying anywhere near this part of Southampton, so their presence was something of a mystery.

Rather unsettled conditions prevailed from mid-June to the end of the month, and this was really the pattern for the rest of the summer. Disaster befell one of my larvae of *Apatura iris* L., which was eaten by an earwig a few hours after its fourth moult, but the other pupated on 3rd June, remained 25 days in that stage, and finally emerged during a brief moment of sunshine on a day of wild and heavy showers.

Some Notes on *Thera juniperata* (L.) (Lep.: Geometridae) in North-West England

By DR. NEVILLE L. BIRKETT

Kendal Wood, New Hutton, near Kendal, Cumbria LA8 0AQ

I was much interested to read Mr. C. I. Rutherford's account of the occurrence of *Thera juniperata* in Cheshire and Yorkshire. (*Ent. Rec.*, 86:121) and it stimulated me to go through the records for this district which is mainly in VC 69. The species has always seemed to be a rather elusive one in this area in spite of the occurrence of much juniper locally. In early October 1957 I made a determined effort to find this moth and visited a few of the juniper localities — on the carboniferous limestone areas at Beetham and Arnside Knott and on the Borrowdale volcanic rocks between Little Langdale and Blea Tarn in central Lakeland. In both areas I operated mv light on nights when conditions seemed good, as evinced by the general numbers of other lepidoptera coming on the sheet. But nary a sign of *juniperata*. Retrospectively I now think that my search in 1957 failed because I was too early in the month, all my dates being prior to the middle of October.

In 1968 Mr. J. Briggs, who had taken up residence at Beetham and within a hundred yards of where I originally worked for the moth, took a specimen of *juniperata* resting on a wall within a few yards of his moth trap. This was of the pale southern form. He tells me that since that date he has taken the species every year except 1971. His earliest and latest dates for the moth are both in 1972 being 8th October and 6th November.

I did not myself take the species in this district until 17th October 1969 when three males came to my mv trap here at Kendal Wood which is some 630 feet above sea-level. This was a welcome occurrence. No further specimens were then noted until one found on the outside of a friend's house some three miles from me on 29th October 1973. A further record has come to my notice of a specimen taken at Ulverston on 27th October 1973 by Mr. D. W. Kydd and recorded in a locally-produced magazine — the *Natural History of Cumbria, 1973*, published by the Association of Cumbria Natural History Societies. All the specimens here noted are of the large pale southern form and quite different from race *scotica* (White) which I have had from the Aviemore district.

Past records of the species in this district are few and not, perhaps, very reliable. In *The Lepidopterous Fauna of Lancashire and Cheshire* by John W. Ellis, revised by W. Mansbridge, 1940, p. 147, it states: "Scarce and local about Juniper in N. Lancs., Silverdale (A.E.W.), Warton (G.L.)". "A.E.W." refers to the late Albert E. Wright of Grange over Sands and I have in my keeping his record books. Under the present species he has written — "Heard of it being taken at Warton Crag, but never comes my way". So it would seem quite certain that Wright never took *juniperta* at Silverdale, nor elsewhere in the district. Confirmatory evidence for this comes from the notebooks kept by the late Dr. R. C. Lowther, also of Grange over Sands, and he comments: "Vague reports. Yewbarrow Crag (G. Podmore). Moth is out very late in the year and I have myself worked for it in vain. . . . Never taken by A. E. Wright."

Mr. Rutherford's suggestion that the species may have been imported with garden junipers from the south is interesting though obviously very difficult to prove — OR disprove! The specimens and records by Mr. Briggs at Beetham suggest that the species is well established there on the naturally occurring junipers in his neighbourhood. The specimens I have taken here at New Hutton are nowhere near any known juniper! Sporadic and rather widespread occurrences in these northern areas suggest either migratory tendencies or a recent northward spread such as has occurred in other species from time to time in recent years.

I am extremely grateful to Mr. J. Briggs and Mr. D. W. Kydd for information and permission to incorporate their records in this note.

Rearing of the Clerid Beetle *Opilo mollis* L.

By J. A. PARRY

38, Heather Drive, St. Michaels, Tenterden, Kent

For several years past I have beaten from an old hedgerow in this vicinity specimens of this rare beetle, usually securing two or three each year. The optimum emergence period from these admittedly limited data would appear to be the three weeks from the last week in May to the middle of June.

Last year, having secured both a male and a female on the same day, I thought I would attempt to breed the species, and accordingly put them together in a glass container with a piece of dead wood; they promptly (and briefly) mated, after which the male showed no interest in the female whatever. Both beetles were then put in a very large cage with several pieces of long-dead Whitethorne (*Crataegus oxyacanthus*), comparatively undecayed portions containing the larvae of *Anobium fulvicorne* St. being selected on the even chance that this species is the host of *Opilo mollis* in this locality. Both disappeared altogether, but the female was found dead on the floor of the cage after a fortnight. Presumably the dead male was eaten by woodlice, which could not be excluded altogether.

On three occasions from August to November samples of the wood (which was kept outdoors and subject to weather) were split to pieces in fruitless attempts to discover progeny. No larvae other than those of *Anobium fulvicorne* were found, and so the project was considered a failure. However in June of this year, needing the cage, I took out the wood and before discarding it split a portion, thereby discovering a large larva, which had prepared a pupal chamber in a very hard dry part. This larva, which was later to produce an adult *Opilo mollis*, was superficially similar to that of *Thanasimus*. The skin was whitish and covered with a regular pattern of pink tubercles on the upper surface of each segment. The head was small, dark, and spatulate, the body hirsute and slightly swollen posteriorly. The larva was active and very mobile, clinging tenaciously to any rough surface with its well-developed thoracic legs.

Later the passage of the larva was traced back from the pupal chamber for about two inches, to an old exit-hole of *Anobium*. It had enlarged the boring considerably, evidently consuming both the contents and some of the surrounding very hard wood, since the passage was now filled with large particles of excreta. The larva evidently therefore possesses the dual capability of free-ranging and woodboring. Several similar enlarged borings were found, showing that a considerable distance in the wood had been traversed, and it seems unlikely that sufficient *Anobium* larvae could have been encountered to feed the larva to its full size. Probably, therefore, at least part of the nourishment is provided by the gallery contents, namely the excreta of the original inhabitants, and perhaps the wood from the enlarging operation.

The larva, reinstated in its pupal chamber, resealed it, and changed to a pinkish pupa. This stage lasted for four weeks, and the adult then emerged. The adult on emergence was straw-coloured, and remained so for five days, then gradually assuming the characteristic colours until on the ninth day it was fully mature.

It is noteworthy that although the wood was kept outdoors in apparently natural conditions this adult was not ready to emerge until 6th August, long after the species is usually found. Two others emerged from other pieces of the wood on their own account in early July, together with a considerable number of *Conopalpus testaceus* Ol. from a rotten part of one piece. *Grynobius excavatus* Kl.* was not present.

Notes and Observations

AMPHIPYRA PYRAMIDEA L. (SENSU AUCT.) CLUSTERING UNDER BARK; WITH A FEW COMPARATIVE REMARKS ON CONCEALMENT, BEHAVIOUR, ETC.—On 30th August 1972, while searching for Coleoptera in a lane at Blackheath, not far behind my former garden, I was much surprised, on lifting a smallish piece of loose bark on the trunk of a moribund elm, when a Copper Underwing quickly emerged from beneath it and almost instantly flew off. From the crevice thus partly exposed there then came forth in rapid succession a series of specimens, one at a time, each immediately taking flight and coming to rest high out of sight in that or nearby trees. I was unprepared for quarry that did not wait to be caught, but concerned to see how long this curious exodus would last; in fact it was over in about ten seconds, during which, as far as I could estimate, seven moths made their escape. Judging by the smallness of the cavity—what little could be seen of it—they must have been quite tightly packed. Another rather odd feature was the presence of many earwigs under the covering bark, which one might have thought disturbing to the moths. The species is somewhat common in the district at light, but whether it is the true *pyramidea* or the lately separated *berbera* Rungs (or conceivably a mixture) I fear I cannot at present say.

Barrett (1899, *Lep. Brit. Isl.*, 5:251) states that *A. pyramidea* is “only found in woods”, and this seems to be the general idea among authors. It is, however, manifestly no longer true; for, as just seen, the moth can be common enough in a built-up suburb where nothing that could be called a wood has existed for very many years (and where other supposedly woodland species such as *Polia nebulosa* Hufn. occur regularly). Further, Barrett (*l.c.*), whilst remarking on its habit of hiding in sheds, and that it probably rests by day in tree-holes or on the undersides of boughs but that evidence is lacking, makes no mention of its clustering under bark; nor do other authors

* Dr. A. Strand has proved that the various supposed European *Grynobius* are but one variable species, *G. planus* F.—A.A.A.

that I have consulted. The subcortical habit—though not that of aggregation—is reminiscent of its smaller and less striking congener *A. tragopoginis* L., which I have often found when stripping loose bark from dead standing trunks (but always singly). The latter, moreover, reacts differently to disturbance: instead of taking wing at once and rising into the air, it scurries mouse-like to a new retreat and only eventually, if thwarted in that object, flies off keeping low and fairly straight. Such a difference is in harmony with the general tendency for Noctuids with coloured hindwings to start instantly into flight when disturbed at rest, while their more drab cousins seem to need to “get up steam” before they can take off. (A marked exception is afforded by *Mormo maura* L., which with its very ample wings moves off as swiftly as a *Catocala*.)

In some species, among them the present one — and a host of others in a less pronounced degree — the light-shunning tropism that leads them to pass the day in some dark cranny is evidently so strong as to overcome fully the lamp-seeking one which appears strangely contrary to it, *once the latter is satisfied*. Thus it is, that such moths, entering a lighted room and basking for only a few minutes in the lamp’s rays, set off in a most purposeful manner to explore every nook and corner and finally settle down behind any available cover, such as a screen over a fireplace or against a wall. *M. maura* has even gone further and vanished up the chimney! — A. A. ALLEN, 49, Montcalm Road, London SE7 8QG, 23.xii.74.

RECORDS OF *HYPENA CRASSALIS* FABRICIUS FROM KENT IN 1974. — On the morning of 28th July 1974 I took in my garden trap in Sittingbourne a rather worn female *Hypena crassalis*. Unfortunately, despite making it feel at home by providing it with a healthy bilberry plant, no eggs were deposited.

A few other examples of this moth have recently turned up, one by my colleague Steven Whitebread in a trap at Platt, near Sevenoaks on 22.6.74. This was at a meeting of the Kent Field Club at Mr. McClintock’s house where a trap had been run overnight. *Crassalis* had apparently been discussed prior to the trap being opened since one had previously been taken at Trottiscliffe. It was suggested that this latter moth might have come from the bilberry on Wrotham Heath, only a few miles away. This locality is recorded as possibly the most easterly for bilberry in Kent and could be the breeding site for all these three specimens. Unfortunately, bilberry is now becoming quite scarce in Kent and this is reflected in the increased scarcity of the moth. — DR. I. A. WATKINSON, 2, Fairleas, Sittingbourne, Kent.

PHYLLONORYCTER MESSANIELLA ZELLER: A MASS EMERGENCE. — On the afternoon of Sunday 28th October 1973 I was walking through the National Trust grounds of Clivedon House — the ancestral home of the Aster’s — on the banks of the Thames in Bucks. As usual at that time of the year, I was

constantly on the lookout for *Phyllonorycter* mines. A few mines on hornbeam and elm had been picked when I came across a large holm-oak. This whole tree was infested with *P. messaniella*, each leaf containing on average half a dozen pale blotch mines making it very unsightly. On moving closer I noticed that the tree was alive with myriads of *messaniella* adults flying freely around the branches. There must have been many hundreds, a fascinating sight in the autumn sunshine. Interestingly, none of the nearby normal oaks, some only yards away, sported any such number of mines, although when gathered, *messaniella* did emerge from some of these on the ensuing days.

A curious observation on the holm oak was that not a single pupa case could be seen protruding from any of the mines — a small exit hole being all to show for a vacated mine. The usual habit in this group is for the empty pupa case to protrude for at least a short time until dislodged by tree movement. This was extremely calm weather, however, I assume the coarse texture of the holm-oak leaf prevented egression of the pupa case — DR. I. A. WATKINSON, 2, Fairleas, Sittingbourne, Kent.

THYMELICUS LINEOLA OCHSENHEIMER (ESSEX SKIPPER) IN THE COUNTY OF AVON.—It is worthy of note that this interesting little butterfly is still maintaining a precarious existence in North Somerset, now the new county of Avon.

Turner in "Lepidoptera of Somerset" (1955) records it in the Taunton district "many years ago" (*The Victoria County History of Somerset*), also at Hinton Charterhouse in 1947 and 1952 (J. A. J. Smith). In 1972 I again recorded a small colony in the Hinton Charterhouse/Wellow area. The habitat is a rough hillside pasturage with a good calcareous flora and much rough grass, especially *Phleum pratense* (Cats-tail grass), *Agropyron repens* (Couch), and *Briza media* (Common quaking grass). This small area holds strong colonies of *Erynnis tages* Linn. (Dingy Skipper), *Pyrgus malvae* Linn. (Grizzled Skipper), *Ochlodes venata* Linn. (Large Skipper) and *Thymelicus sylvestris* Poda (Small Skipper), the latter flying with *lineola* and making identification difficult.

I have made extensive searches around Bath over a number of years but this is the only colony which I have been able to locate. Strangely enough, despite the fact that 1973 was an excellent butterfly year, *lineola* was very difficult to find in this area. — BRYAN W. MOORE, Church Cottage, Batheaston, Bath.

STENEPTERYX HIRUNDINIS (L.).—On the 30th of September, I came across a young house martin (*Delichon urbica*) sitting forlornly in the middle of the footway. I picked it up and brought it home, about a quarter of a mile, but it seemed to take no interest in being handled and sat quietly all the time. When I reached home, while showing it to my wife, a specimen of the blood-sucking fly *Stenepteryx hirundinis* (L.) dropped

into my hand. Shortly afterwards, the bird seemed to show a little more interest in life and I placed it on a window cill out of reach of cats, and left it. In a short time it was gone, and a search below the window showed that it had not just dropped to the ground.

Some years ago, when my daughter was a schoolgirl, she brought in a blackbird which she had picked up in the garden, and from which a specimen of *S. hirundinis* dropped. This bird, too, showed signs of returning interest in life, and shortly afterwards it flew away.

These two cases leave me wondering whether this unpleasant looking insect does inject some narcotic into the bird's bloodstream while feeding. — S. N. A. JACOBS, 54, Hayes Lane, Bromley, Kent BR2 9EE, 2.x.1974.

DIARSIA ? FLORIDA (SCHMIDT) AND XANTHORHOE MUNITATA (HUBNER) IN SWALEDALE. — I stayed four nights, 28th to 31st July 1974, above Keld, at the head of Swaledale in Yorkshire North Riding. The house was on the 1,500 feet contour, with a wet, newly cut hayfield in front and moorland pasture behind; it was very exposed, and the weather was vile. The moth trap gave only 23 species, but two were of interest.

On 30th and 31st there were five fresh examples of a *Diarsia* species which I should like to call *D. florida* Schmidt because of their large size, pale pinkish colour, and date of capture, which is too early at that altitude for them to belong to a second brood of *D. rubi* Vieweg. They agree closely with my specimens from Inverness-shire, taken at Aviemore in early July and high above Dalwhinnie on 1st August. They also agree with the coloured illustrations of the typical form of *D. florida* from Askham Bog, which is a low level Yorkshire locality (*Ent. Gaz.*, 2: 71 and Plate 1). But *D. florida* was introduced by Cockayne in 1950 as essentially a *fen* insect, as its present English name, Fen Square Spot, indicates. I am not sure if it is right to attach these montane and Highland insects to it, despite their similar appearance and single-brooded character; or whether it is not better to regard them, and perhaps the fen *D. florida* as well, as biological races of *D. rubi*. Comment would be welcome.

Three specimens of *Xanthorhoe munitata* also entered the trap, in all of which the usual pink central band was missing, the area between its defining lines being silvery grey like the rest of the forewing. Unfortunately, I thought that the first two were merely rain-washed, and released them; but the one which I kept is perfectly fresh. Since I saw none of the typical form this variant may be the local race. — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Surrey GU5 0LE.

THREE NOTABLE MICROLEPIDOPTERA AT BLACKHEATH, N.W. KENT. — *Apomyelois neophanes* Durr.: I was much surprised to find that a dark Phycitid which came to my m.v. lamp on 21.vi.59 could only be this very local insect. As its larval

pabulum, the black fungus *Daldinia*, appears to be scarce in this district — I have seen it but once, this year near Woolwich on an ash — the moth seemed likeliest to have been a casual vagrant; however, a second specimen was taken in the same way on 7.vii.70 (after a very hot day with the shade temperature up to 88°F. in London), making that idea perhaps, rather less plausible. The species seems, from the literature, to have some constant association with furze (*Ulex*), which does flourish on an outlying part of Blackheath. I am not aware of a previous Kent record of *A. neophanes*; Beirne (1954, *Brit. Pyralid and Plume Moths*: 107) gives only Surrey, Hants. (with Isle of Wight), Dorset and Devon for its distribution.

Infurcitinea argentimaculella Stt.: As Mr. E. S. Bradford (1971, *Ent. Rec.*, **83**: 342) has asked for records of this interesting little moth, I should mention having taken a specimen as long ago as 3.viii.56, flying against and settling on a fence in Blackheath Park (a residential tree-lined road); the exact spot was barely 50 yards from my former front garden. The determination was carefully checked by Mr. S. Wakely. I have never met with it again and indeed should not expect a lichen-feeder to inhabit a London suburb; the Clean Air Act, which may ultimately recreate conditions suitable for them, was not then in force here. There are, however, old records of *I. argentimaculella* for N.W. Kent: in "Woolwich Surveys" (1909), p. 404, it is reported from Blackheath, Eltham, and Sidcup (Bower) and Dartford Heath (Stainton), and as being scarce. Mr. Bradford (*antea*: 170) gives only two present-day Kent localities, East Blean and Folkestone, both of course at the other end of the county.

Mompha nodicolella Fuchs: Mr. J. M. Chalmers-Hunt (1970, *Ent. Rec.*, **82**: 301) has published the first record of this very local species in Kent, on a specimen from West Wickham (4.ix.63). I find that I had neglected to record one which came to my m.v. lamp on 2nd July 1960; it was named by comparison with bred examples from Horsell, Surrey, and further confirmed by Mr. Wakely; this should therefore be the earliest specimen so far known to have occurred in the county. In view of its abundance at one or two spots in London (Chalmers-Hunt, *l.c.*), the moth has probably by now gained a footing in some of the West Kent suburbs although it has not recurred to me at Blackheath. — A. A. ALLEN, 49, Montcalm Road, London SE7 8QG, 25.xii.74.

Obituary

CYRIL WYNTHROP MACKWORTH-PRAED (1891-1974)

The death of Cyril Mackworth-Praed on 30th June 1974, in his 83rd year, has removed from the Natural History scene not only one of the most eminent observers of wild life of his time, but also one who was equally well versed and erudite as a notable entomologist, as a distinguished ornithologist as well as an expert on wild plants and the larger mammals. Few people in recent times can have had a wider knowledge of some of the specialised branches of these subjects.

It was probably back in his Eton days or when he lived in his youth on the Surrey downs that the incentive came to him to study everything connected with nature around him. His lifelong interest in the lepidoptera doubtless began at this period. Whenever he was able to take time off from his family stockbroking firm in the City, especially during the summer months, he loved nothing better than to observe the butterflies and moths near and at his fine home at Burley in the New Forest where he ran a large moth-trap regularly for over 30 years. He could virtually identify at sight every species that came to it down to the smallest of the micros. He built up over the years a most comprehensive collection of the British lepidoptera, all beautifully set and arranged. The Scottish moors were one of his most rewarding hunting grounds. It was while serving as Colonel in the Scots Guards at Inverlochy Castle, near Fort William during the 1939-45 war, that he found the Chequered Skipper flying in that vicinity, which caused a great stir at the time since no one imagined this agile little butterfly occurred anywhere outside its usual haunts in the Midland counties. As far back as 1919 he discovered, also in the western Highlands, the little moth *Symaethis diana* Hübn., of which very few examples have been found since. Cyril Praed also cast his net wide, collecting in Europe, in the Alps, the Pyrenees and Sardinia, also in Cyprus. Africa was the scene of several visits, the earliest being in 1914, a most adventurous occasion when he and friends were in pursuit of big game in what is now Tanzania. They found themselves under fire from the German settlers. This was their first realisation that war had broken out in Europe. He tells how they made a suitable reply with their arms before returning to British territory and then back to England to serve, as he did, with the Scots Guards for the duration of that war.

Cyril Praed was possibly even better known as an ornithologist. He was a member of the British Ornithologists' Union for over 50 years and became its Secretary and Treasurer. The birds of Africa have always been of supreme interest to him. Between 1952 and 1973 were published, at first with the collaboration of the late Capt. C. H. Grant, the *African Handbook of Birds* in six large volumes, all beautifully illustrated and covering all the species known south of the Sahara. For his services in this field he was awarded the O.B.E. Wild flowers

were another of his hobbies. He had a fine collection of pressed specimens from both the British Isles and Europe.

His prowess with rifle, rod and gun was equally renowned and many stories are told of his remarkable feats with these weapons, whether on the moors or at Bisley where he competed for many years in the Queen's Prize. In the Olympic Games in Paris in 1924, the rifle team he led won a gold medal. Many a large fish too did he land from the waters of the Hampshire Avon and other famous rivers. In fact, Cyril Praed was one of those people who excelled in everything he carried out. He was quite indefatigable, even pursuing butterflies in Kenya when he was nearly 80 but the onset of a serious physical disability began to curtail his energy and activities. Even when severely crippled he would go meticulously through the contents of his moth-trap at his Hampshire home.

He was indeed a most inspiring personality and a most delightful companion in the field, always full of enthusiasm and cheerfulness. His loss will be very widely felt not only in the Natural History world, but among a very large circle of friends who admired his fine qualities. All sympathy is extended to his widow and to his three sons and two daughters.

C.G.M. de W.

PTYCHOLOMOIDES AERIFERANUS H.-S. AND PAMMENE AURANTIANA STAUD. IN MONMOUTHSHIRE. — On the evening of 10th July 1973, together with a friend Mr. R. C. Shillinglaw, I visited my favourite "mothing" site in Tintern Forest and set up my m.v. light on a wooded hillside above the River Wye. After a hot humid day the night was warm and overcast and, with many moths flying, it proved a memorable occasion.

Sixty-seven species of Macrolepidoptera came to the light, including *Pseudoips prasinana* L., *Autographa bractea* D. & S., *Mitochondria miniata* Forst., *Perizoma blandiata* D. & S., and *Semiothisa notata* L., all five of which are of infrequent occurrence in Monmouthshire.

There were also many species of Microlepidoptera, the most notable being the Tortricid *Ptycholomoides aeriferanus* H.-S. This appeared plentifully on the sheet and I secured several specimens of both sexes. These were not recognised at the time but were later identified by Dr. J. D. Bradley.

The first British record of this moth was from Kent in 1952 and subsequent records given by J. D. Bradley, W. G. Tremewan, and Arthur Smith (British Tortricoid Moths) are limited to eastern and southern England. Its range would therefore appear to have now extended right across England into Wales.

A second Tortricid which also appears to have rapidly extended its range westwards during the last two decades and has now turned up in Monmouthshire is *Pammene aurantiana* Staud. A single example of this moth, in fresh condition,

appeared in the Robinson m.v. trap in my garden at Usk on 25th July 1973.

As Monmouthshire is now included in Wales it would seem that these are probable first records for the Principality for these species.—DR. G. A. NEIL HORTON, Plas Newydd, Usk, Monmouthshire.

Current Literature

British Museum (Natural History). Insects: Instructions for Collectors, No. 4a, iv. 169 pp., 37 illustrations, London, 1974. £1.50.

This, the fifth edition, has been completely revised by Messrs. B. H. Cogan and K. G. V. Smith to take account of the many new techniques and advances that have been introduced in recent years.

The handbook gives an up-to-date account of modern methods of insect collecting, packing and transport which will be of use to collectors, especially those whose insects are destined to go to the Museum.

The preface and introduction are followed by sections on general collecting (pp. 13-62). Each order is then dealt with separately, including the Diplura, Protura and Collembola (pp. 68-150); and there is a section on Insects Ectoparasitic on Mammals and Birds (pp. 151-155). The work concludes with a short bibliography, appendix with notes on chemicals used, and an index.—J.M.C.-H.

The Genus *Aloeides* and Allied Genera (Lepidoptera: Lycaenidae) by G. E. Tite and C. G. C. Dickson. *Bull. Br. Mus. Nat. Hist. (Ent.)*, **29** (5): 225-280, 5 plates, 2 folding maps, 32 text figures, 1973. £6.55.

This is a revision of the genus *Phasis* Hübner as interpreted by Aurivillius (1924) with its species allocated to nine genera, five of which are new. Excepting those species already dealt with by the authors (in 1968, *Bull. Br. Mus. Nat. Hist. (Ent.)*, **21** (7): 367-388), all *Aloeides* species are included, with eight new species and eight new sub-species being described and figured. There are keys to the genera and to the species and most sub-species of *Aloeides*. There are also details of the life histories of two species and addenda to "The *Aloeides thyra* complex" (Tite and Dickson, *loc. cit.*), with descriptions of yet a further new species. The work concludes with a check-list of all the species and sub-species of *Aloeides*, a list of references and an index.

The five superb colour plates include 150 natural size figures realistically portrayed from photographs of the actual specimens referred to in the text.—J.M.C.-H.

Geographical Variation of *Maniola jurtina* (L.) (Lepidoptera: Satyridae) by G. Thomson. *Tijdschrift voor Entomologie*, 1973, **116**: 185-227, 2 plates, addenda and corrigenda, 2 pp.

The author describes the form and geographical variation of the male genitalia in *Maniola jurtina* and examines the distribution of the various types encountered. There is a study of the morphological and genitalic correlations, so forming the basis of a revision of the sub-species and geographical races of *M. jurtina* in which two new sub-species are described.—J.M.C.-H.

Insect Physiology by **V. B. Wigglesworth, F.R.S.** Science Paperbacks, 7th Edition, Chapman and Hall, London. £1.65.

This new edition, in larger type, has been much improved by use of numerous bold type sub-headings, to facilitate easy reference. There are a few minor textural additions including a clarification of the terms Moulting and Ecdysis; the probable action on localised gene function of chemical gradients on cuticle pattern; the activity of glial cells in maintaining Sodium and Potassium concentrations round axons; recent ideas on insect vision and wave guides. The book ends with a short additional chapter on The Endocrine Systems. The Bibliography is revised.

The writer, as always, combines conciseness with a lucidity which should attract both the general reader and the student.—E.H.W.

The Pollution Handbook by **Richard Mabey.** Penguin Educational. 70p.

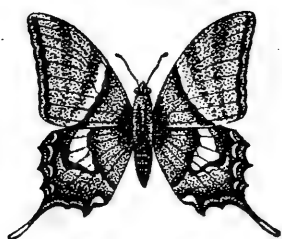
The main theme of this book is an account of the Advisory Centre for Education's organised survey, by children, of air and water pollution.

It is well illustrated by both photographs and good line drawings, and cannot fail to be of interest to all concerned with conservation. All school libraries should have a copy as an inspiration to what can be achieved with minimum cost by the absolute beginner, using indicator insects and simple chemical tests.—E.H.W.

The World of Moths by **Michael Dickens** and **Eric Storey.** Osprey. £2.25.

There is a short introduction on the life cycle of, and hints on rearing, moths, followed by a naïve attempt at justifying the place of insect dealers in the field of conservation. Such organisations dealing in exotic insects must rely on the mercenary activities of professional collectors, and claims that surplus stocks can be released in their own habitats can scarcely apply to most of the insects figured. These are mainly tropical moths selected for their visual appeal so that of the 108 species shown there are 39 Saturnidae, 30 Sphingidae and NO Geometridae. Many of the figures are "muddy" and of unnatural colour. There is no standardisation of size. *C. sponsa* is shown as much larger than *C. fraxini*.

It is difficult to imagine who would benefit from this book.—E.H.W.



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A guide to the natural history manuscript resources of the British Isles is being prepared by Gavin Bridson (Librarian, Linnean Society of London, Burlington House, Piccadilly, London, W1V 0LQ) and Anthony P. Harvey (Librarian, Department of Palaeontology, British Museum (Natural History), Cromwell Road, London, SW7 5BD). Relevant libraries, museums and other organisations are being surveyed by means of questionnaire. A particular problem of this survey is the wide scattering of material as shown by its presence in some unlikely locations and many individuals will, through their own researches, have come into contact with such items. They may also know of undocumented items in public and private collections and might be able to contribute valuable information. The compilers will be grateful for, and readily acknowledge, any such information. The results of this survey are to be published by the Bowker Publishing Co. Ltd. in 1975.

A Survey of the Macrolepidoptera of Croydon and North East Surrey by L. K. and K. G. W. Evans. 133 pp. with 4 plates and detailed area map. Price £1.20 including post/packing. To be obtained from The Secretary, Croydon Natural History and Scientific Society, 96a Brighton Road, South Croydon, Surrey, CR2 6AD.

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The Maidstone Museum have recently set up a Kent Biological Archives and record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onward. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr. E. Philp at the Maidstone Museum, St. Faith's Street, Maidstone, Kent.

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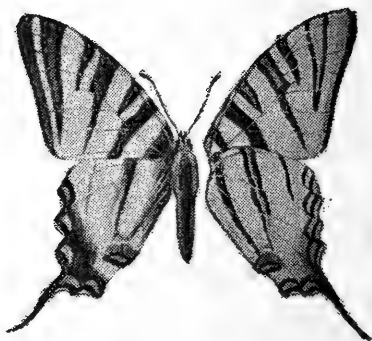
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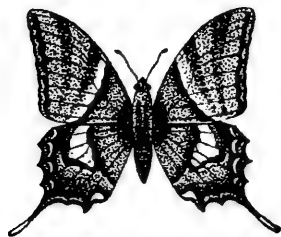
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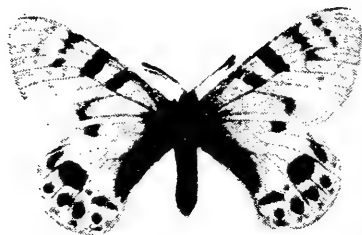
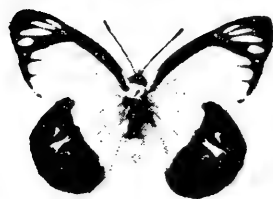
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Lepidoptera in Dordogne, South West France, in May 1974

By R. F. BRETHERTON, C.B., M.A., F.R.E.S.

Folly Hill, Birtley Green, Bramley, Guildford, Surrey SGU 0LE

My wife and I stayed from 12th to 27th May 1974 with friends in a converted farmhouse in the small village of St. Cirq, which lies between Le Bugue and Les Eyzies in the department of the Dordogne, South West France. This is limestone country of low hills with many south-facing slopes and narrow valleys, some with water meadows and marshes, in the angle formed by the junction of the rivers Vézère and Dordogne. It has long been famous for its caves, with their paintings and sculptures dating back for perhaps 20,000 years: Les Eyzies is pretentiously described in the guide-books as "the capital of pre-history". The area is also full of mediaeval churches and castles, many of them built when the kings of England were also dukes of Aquitaine. The country has a fine limestone flora, which was at its spring best while we were there, and it is also rich in lepidoptera, though it does not seem to contain any particularly rare species, at least among the butterflies. The climate is Atlantic rather than Mediterranean; we had mixed weather, with short spells of sunshine and warmth alternating with grey skies and rain with cold westerly winds.

I had already briefly sampled the attractions of the district during a stay of three nights at Les Eyzies at the beginning of August 1963, while on the way to the Pyrenees. A very useful list of the Macro-lepidoptera of the region has been published by Monsieur C. Dufay, based on his collecting by day and with a light trap during the six months from April to September 1955. As he says, in so short a time the list could not be made complete, though even so it contains 90 Rhopalocera and 400 Heterocera. I was able to add to it four species of butterflies and three of moths in May 1974.

In all 52 species of Rhopalocera were seen, which are listed at the end of this note. Of these 23 are not now resident or annually immigrant in Britain; two — *Aporia crataegi* L. and *Cyaniris semiargus* Rott., which were just beginning to emerge in abundance, were once British but are now extinct; and a further two — *Colias australis* Vty. and *Nymphalis antiopa* — are occasional immigrants with us. Probably because of the late spring some of the hibernating species, such as *Gonepteryx rhamni* L. and its southern cousin *G. cleopatra* L., were still numerous and in fair condition. But the main interest was the almost daily emergence of new species: our score at the end of the first two days was more than doubled by the end of our stay. The dominant butterfly throughout was the attractive Fritillary *Mellicta parthenoides* Kef., which occurred in vast numbers almost everywhere on the slopes, in the hayfields, and along the road verges. I was lucky to take a splendid male example of ab. *rhoio* Oberthür, in which the hindwings underside have a broad cream-coloured central band instead of the

usual white spots and orange ground colour, while on both surfaces of the forewings the central black markings are wholly lacking. Other Fritillaries were very common: *Melitaea phoebe* Schiff., *M. didyma* Esp., *M. cinxia* L. mostly in the hayfields, *Clossiana euphrosyne* L., with a single *C. dia* L., in the woods, and *M. diamina*, surprisingly early, in the marshes of the Beune Valley above Les Eyzies. Among the other Nymphalines single, worn, examples only of *Nymphalis antiopa* L. and *Araschnia levana* L. were seen, but the Continental White Admiral, *Limenitis reducta* Stdgr., appeared on 15th May and became fairly common later in the week. The two Swallow Tails, *Papilio machaon* L. and *Iphiclide podalirius* L., were often seen even on the terrace of the farm house. *Leptidea sinapis* L. was by far the commonest Pierine, though *Colias australis* Vty. was locally abundant on the steeper slopes; I was glad to take a fresh female of *Pieris mannii* Mayer, which seemed to be rare. Among the Satyrids *Pararge aegeria* L. was notable for its rich orange yellow ground colour: all the specimens seen were fresh, so it seems that the April emergence to which we are accustomed in southern England does not take place in the Dordogne. *Maniola jurtina* L., on the other hand, appeared much earlier than in England: it was first seen on 24th May, and males became common on the two following days, though no females were seen.

Notable among the Lycaenids were the delicate *Everes alcetas* Hffgg., which was locally common, flying along with *Cupido minimus* Fuesl. and quite hard to distinguish from it on the wing. The females of *Lysandra bellargus* Rott. were interesting. I saw none of the bright blue form which occurs rather further north around Angoulême; but all the Dordogne examples examined had a thin sprinkling of blue scales mixed with the brown ones on the upper side of all wings, which gives them a curious steely appearance. Other interesting Blues were *Philotes baton* Bergstr., which was local and not common and very variable in size; *Glaucopsyche alexis* Poda, of which I took a female which was heavily streaked with blue on the upperside; and the brilliant *Plebicula dorylas* Schiff., which was just emerging near Trémolat on our last full day, 27th May.

Of the Skippers *Spialia sertorius* Hffg., with its bright orange underside, was common and conspicuous. *Pyrgus malvae* L., on the other hand, though seen in several places, was rather scarce and hard to catch. This was unfortunate, as I had hoped to collect a good series in order to determine whether there was any overlap in the distribution of the two sub-species (or species), *malvae* L. and *malvoides* Elwes and Ed. Monsieur Dufay states that he found *malvoides* on the south-facing slopes at Vilajou, but that further north at Tamniès in the valley of the Grande Beune he met with *malvae*. I brought back only five males and two females. Of the males, one was taken at Vilajou, one a little further north at Saint Cirq, and three in the Beune Valey. Dissection shows that *all* are unambiguously *malvae*. It therefore seems likely that some

overlap does occur at Vilajou, though I did not myself take the two sub-species flying together. Since *malvae* is usually only single-brooded and *malvoides* double brooded there may be some difference in their dates of emergence and flight in the spring. Other Skippers, which I was surprised to see so early in the season, were *Pyrgus fritillarius* Poda (*carthami* Hubn.), near Les Eyzies on 15th May, and *Ochlodes venata* Br. & Grey, on the 18th.

Our strongest impression was of the great total abundance of Rhopalocera in this Dordogne country, by comparison with the chalk and limestone areas of southern England. Explanation of this contrast must be speculative, but two obvious differences in the environment may be noted as possibly relevant. The first is in agricultural practise. Though the farms are many, they are mostly small and engaged in very various production: tobacco, wine, sheep and cattle, poultry and even rabbits, with little land under the plough. The hills, where they were not wooded, were well but not excessively grazed; and the many hayfields appeared not to be cut all at once but in small areas as grass was needed from day to day — a practise which must help the survival of the enormous numbers of butterflies which obviously breed in them. The second striking difference is the relative rarity of small birds in the area, which may be due to local shooting habits, though there was no evidence of indiscriminate bird slaughter while we were there. We were interested to see that two extensive areas beyond Les Eyzies had been set aside as total nature reserves, in which "la chasse" in any form was forbidden; but for the lepidoptera there seemed to be no need for such precautions.

The butterflies were reinforced by four species of Burnets, *Zygaena trifolii* Esp., *Z. hippocrepidis* Hubn., *Z. loti* Schiff., and *Z. fausta* L., and by a fair showing of other diurnal moths. At night the ordinary electric light outside the house door produced an interesting selection. There were trees of the Large-leaved Lime (*Tilia platyphyllos* Scop.) on the terrace, and several *Drepana harpagula* Esp. duly came to the light. Other interesting species were *Epicnaptera tremulifolia* Hubn., which closely resembles our extinct *E. ilicifolia* L., *Hoplitis milhauseri* F., of which there is only one British record, and the fine Prominent *Ochrostigma vellitaris* Hufn. Our most dramatic capture was that of two male specimens of *Saturnia pyri* Schiff., which is the largest European moth, with a wing expanse of up to six inches. The first, after flying to the porch lamp, caused confusion by trying to intervene in the treatment of a car which had developed a crucial defect. The second, possibly disturbed by a bird, flapped down to the grass on the terrace during a pre-luncheon drinks session and allowed itself to be admired and photographed by the assembled company before capture. The village school mistress told us that a third had entered the school room, interrupted her class, and provoked sundry acts of indiscipline among her 12 pupils. Clearly an excessively self-assertive species!

Other interesting Heterocera noted were *Coscinia cribraria* L., in an almost unmarked white form very different in its appearance, as well as in its emergence date, from our British sub-species; *Cosymbia ruficiliaria* H-S., which looks like an intermediate between *C. porata* L. and *C. punctaria* L., and may possibly be overlooked in Britain; and the fine Boarmid *Synopsia sociaria* Hubn. An example of *Hemaris fuciformis* L. was seen in the Beune Valley: it is not included in M. Dufay's list.

A full list of the Rhopalocera seen between 13th and 26th May 1964, with the dates when they were first seen, is as follows: *Papilio machaon* L., 13.5; *Ipheclides podalirius* L., 14.5; *Pieris brassicae* L., 13.5; *P. rapae* L., 13.5; *P. mannii* Mayer, 18.5, one female only in the Beune Valley; *P. napi* L., 13.5; *Aporia crataegi* L., 20.5, males common at Vilajou and Saint Cirq; *Anthocharis cardamines* L., 13.5; *Leptidea sinapis* L., 13.5; *Colias crocea* Fourc., 25.5., one only, Causse de Gramont; *C. australis* Vty., 13.5, becoming abundant on steep slopes everywhere; *Gonepteryx rhamni* L., 13.5; *G. cleopatra* L., 14.5, Beynac, Saint Cirq, few; *Limenitis reducta* Stdgr., 15.5, Beune Valley, few; **Nymphalis antiopa* L., 15.5, one only, Beune Valley; *Inachis io* L., 25.5, larvae nearly full-grown; *Vanessa atalanta* L., 20.5, one only; *Aglais urticae* L., 26.5, one worn, also larvae; *Polygonia c-album* L., 15.5, few; *Araschnia levana* L., 21.5, Limeuil, one worn male; *Clossiana euphrosyne* L., 13.5; *C. dia* L., 15.5, Beune Valley, one only; **Melitaea cinxia* L., 18.5, Saint Cirq, many in hayfields; *M. phoebe* Schiff., 15.5, Saint Cirq., Vilajou, many; *M. didyma* Esp., 18.5; *M. diamina* Lang, 18.5, many males in marshes in Beune Valley; *Mellicta parthenoides* Kef., 13.5, abundant everywhere; *Pararge aegeria* L., 13.5; *Lasiomata megera* L., 13.5; *L. maera* L., 17.5; *Maniola jurtina* L., 24.5, males common; *Coenonympha pamphilus* L., 13.5; *C. arcania* L., 18.5, Saint Cirq, Vilajou, many; *Callophrys rubi* L., 14.5; *Heodes tityrus* Poda, 13.5; *Lycaena phloea* L., 18.5; *Everes alcetas* Hffgg., 14.5, Saint Cirq, Beune Valley, locally common; *Cupido minimus* Fuess., 15.5; *Celastrina argiolus* L., 13.5, Saint Cirq, few; **Glaucopsyche alexis* Poda, 17.5, Limeuil, Saint Cirq, few; *Philotes baton* Bergstr., 13.5, Saint Cirq, on steep slopes, few; *Aricia agestis* Schiff., 26.5, Beune Valley, common in one place; *Cyaniris semiargus* Rott., 21.5; *Plebicula dorylas* Schiff., 26.5, Trémolat, males only; *Lysandra bellargus* Rott., 13.5, abundant on slopes and in hayfields; *Polyommatus icarus* Rott., 18.5; *Hamearis lucina* L., 20.5, Vilajou, few; *Pyrgus malvae* L., 15.5, Saint Cirq, Vilajou, Beune Valley; *P. fritillarius* Poda 15.5, Beune Valley, Saint Cirq, few; *Spialia sertorius* Hffgg., 15.5, very common on slopes; *Erynnis tages* L., 13.5; *Ochlodes venata* Br. & Grey, 18.5.

The following additional species were noted in the region 1st/3rd August 1963: *Pontia daplidice* L., *Argynnis paphia* L., *Vanessa cardui* L., *Melanargia galathea* L., *Minois dryas* Scop., *Pyronia tithonus* L., *Everes argiades* Pall., *Lysandra coridon* (Species marked * are not mentioned in M. Dufay's list.)

Poda, *Carcharodus flocciferus* Z., *Thymelicus sylvestris* Poda.

We returned from St. Cirq as we had come to it, by driving our car for 400 miles to and from Le Havre and using the night ferry to Southampton, with a night's stop on each journey in the Loire Valley to visit some of the chateaux. I had hoped to do some useful collecting on the way. But on the outward journey we had rain and grey skies until we were nearing the Dordogne, and even then saw few butterflies in the forests, which mostly still showed signs of damage from late frosts. On the return journey the weather was also poor, but a short stop on the edge of a marshy wood near Sées in Normandy gave me a pair of the Skipper *Carterocephalus palaemon* Pall. and a fine female *Mellicta parthenoides* Kef., which must be there near its north western limit.

Reference

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Among the British Lepidoptera, 1973

By B. G. WITHERS, B.Sc.

"Onaway", 18 Broadstone Road, Harpenden, Herts., AL5 1RG

The beginning of the year was remarkable for its mild weather, and my first foray on 29th January was to Nomansland Common, two miles from my home, armed with only a flashlight. The mild conditions had caused a curiously premature emergence of *Agriopsis marginaria* F. along with many *Theria rupicaprararia* D. & S.; and two males of *Apocheima pilosaria* D. & S. actually flew to the feeble beam of my torch. On subsequent evenings the same species were noted in considerable numbers in this and other nearby localities. My first outing with the portable m.v. turned out to be a traumatic experience to say the least! The date in question was 19th February and the location again Nomansland Common. Operations commenced at 6.00 p.m. and by 6.45 moths were flocking to the light, these including *Eupsilia transversa* Hufn., *Conistra vaccinii* L., an abundance of *A. philosaria*, including five melanic specimens, and several *Agriopsis leucophaearia* D. & S., among which were several melanic specimens and one fine example of the form *marmorinaria*. At 7.15, deciding to leave the equipment running while I returned home for a quickly snatched meal, I was horrified on my return to find that the generator (with the exception of the petrol filler cap), choke and m.v. lamp had vanished into thin air! The rest of the evening was spent contacting the police and combing the area for signs of the truant equipment. However, it was not until the next day that it was found by a local inhabitant and handed over to the police; it had been thrown in the bushes by some well-wisher or other, but was fortunately little the worse for its adventure. But this time, the story had reached the ears of the local press and this culminated in the hirsute physiognomy of Yours Truly appearing on the front page of the local newspaper—fame at

last!! Undeterred by this contretemps I continued to operate the light in the area throughout the season although I never again left it unguarded.

The weather in the first half of March was less favourable than in 1972 and I made few trips until the 17th when the m.v. light was operated at Symondshyde Great Wood; the sky soon cleared, however, revealing a full moon, and of eight species of macro noted the best were singletons of *Achlya flavicornis* L. and *Ectropis bistortata* Goeze (a melanic specimen).

Warm days around this time brought out the first butterflies in the Harpenden area, notably *Aglais urticae* L., while *Tortricodes alternella* D. & S. was common in the oak-woods of Nomansland and Symondshyde. Portable m.v. at Nomansland Common on the 19th produced large numbers of moths, with *Orthosia munda* D. & S. in plenty, including one very dark specimen, and nine other species of macro.

The weather continued fine and warm and I decided to make a daytime trip to Ashted Wood in Surrey with the express purpose of renewing my acquaintance with *Archearis parthenias* L. A number of these were seen, but only one fell to my net in two hours. Butterflies were very numerous on this beautiful day, several *Gonepteryx rhamni* L., all males, being seen, along with three each of *Inachis io* L. and *Polygonia c-album* L. A number of *A. urticae* were also noted. On the 29th, a trip to Symondshyde Great Wood produced nine species of macro to the portable m.v., the most noteworthy being a heavily barred specimen of *A. flavicornis* and a number of *Biston strataria* Hufn., including a heavily suffused example. *Diurnea fagella* D. & S. was abundant and in great variety.

Cold weather marked the first fortnight of April, and the only interesting occurrence was the emergence of my first female *Alsophila aescularia* D. & S. from Kentish stock on the 3rd. A marked improvement in conditions on the 14th found us in Surrey. Little was seen in the afternoon at Ashted, but in the evening we found ourselves surrounded by other entomologists at Friday Street where the main quarry *Jodia croceago* D. & S. was conspicuous by its absence despite numerous m.v. and actinic lights and abundant sugar. Fifteen species of macro were noted by the assembled multitude and these included *Selenia tetralunaria* Hufn., *Colostygia multistrigaria* Haw., *Pachycnemis hippocastanaria* Hufn. and an abundance of *B. strataria*. Our static m.v. trap running at Box Hill produced only common *Orthosias* and one *Lycia hirtaria* Clerck. A beautiful day dawned on the 15th and we drove from Surrey to the New Forest where a specimen of *Aleucis distinctata* H-S. was taken from the wall of one of those legendary Hollands Wood toilet blocks. In the Forest over 50 males of *G. rhamni* were noted with the first few females. We travelled back from the New Forest via Whiteparish to the Chilterns stopping near Ibstone to examine some sallows at dusk. These bushes produced four specimens of *Cerastis leucographa* D. & S., along with numerous *O. gothica*, *O. stabilis*, *O. incerta*, a few *Cerastis*

rubricosa D. & S. and a single example of the plume *Emmelina monodactyla* L. A further *C. leucographa* was taken at shallows in Whippendell Wood near Watford on the 17th, while the trap in my garden produced a fine melanic male *L. hirtaria* and an early *Mamestra brassicae* L. among 50 moths, comprising ten species.

The fine weather of the past few days gave way to very cold and unsettled conditions which persisted over the Easter period, and an abortive beating foray on Nomansland Common was brought to an abrupt end by a violent hailstorm. This rather uninteresting period was enlivened by the emergence in my cages of a number of *Colocasia coryli* L. bred from a female taken in the previous May at Symondshyde Great Wood. Among these were several melanic specimens. Weather conditions improved a good deal after Easter and on the 26th the first of four *Cucullia chamomillae* D. & S. appeared in the garden m.v. trap. I then set off on a two-day expedition to the New Forest, arriving there around mid-day when inspection of the Hollands Wood toilet blocks produced nine species of Macrolepidoptera, including single specimens of *Polyphoca ridens* F. and *Odontosia carmelita* Esp. In the afternoon I visited a large tract of heathland near Lyndhurst, where a big area had been razed by fire the previous season and only four male *Saturnia pavonia* L. were seen. This paucity may have been owing to the fire, but was more likely due to the atrocious early summer of 1972, as few *pavonia* were seen in other localities untouched by the fire. In the evening, despite rather cool, clear and misty conditions, the portable m.v. was operated in Hollands Wood above the campsite and between 9.15 and midnight 20 species of macro were attracted, including *S. tetralunaria* (two males), *Eupithecia irriguata* Hübn. (two fine specimens), *Nola confusalis* H-S., *P. ridens* (three) and *L. hirtaria* (several, including two of a beautiful golden ground-colour). A makeshift trap supporting an actinic tube placed in a nearby blackthorn thicket produced little of interest, apart from a further male *S. tetralunaria*. The morning of the 27th was again very sunny and warm, but more cloud developed during the afternoon and apart from a few *Ematurga atomaria* L. and a further singleton male *S. pavonia*, little was seen on the wing near Lyndhurst. Nocturnal operations were conducted in clear but rather mild conditions; the actinic trap was left hidden among blackthorn bushes close to Hollands Wood while I went to the heathland near Lyndhurst overlooking Matley Bog to operate a portable m.v. light. The proceedings here opened with a run of *Eupithecia nanata* ssp. *angustea* Prout., most of which were in fine condition, to be followed by a number of *O. incerta* which varied a great deal in colour, and from then until 11.45 p.m. moths flocked to the light. In all 20 species of macro put in an appearance and I was very pleased to take two fine specimens of *O. carmelita*, two of *Cleora cinctaria* D. & S., and one very fresh *Clostera pigra* Hufn. The actinic trap in the blackthorn thicket also produced a number of moths including one specimen of *Panolis*

flammea D. & S., and the camp lights attracted the first *Diaphora mendica* Clerck. of the season among 11 species.

The first of May was a day to remember. Having learned that *Chloroclystis chloerata* Mab. had been noted in numbers in East Hertfordshire in 1972, I resolved this year to try for it in the Harpenden area. Nomansland Common was the obvious choice as blackthorn abounds there. After a few minutes a plump pale green larva with an interrupted pinkish dorsal stripe was dislodged from a large flowering blackthorn bush and within a few minutes a further two were beaten out; three more were beaten out a few days later and went down within hours. Four moths emerged towards the end of the month to confirm the identity of the larvae, and show *chloerata* to be present in yet another Hertfordshire locality.

Portable m.v. light at Nomansland on the 2nd produced 12 species of macro including two melanic specimens of *P. ridens*: typical *ridens* appear to be distinctly uncommon in this area, and a further melanic example was noted at Symondshyde Great Wood on the 3rd. On the 4th, back at Nomansland, portable m.v. produced only seven species, but one of these was an example of *Nycteola revayana* Scop. The weather deteriorated the following day and wet, cold and windy weather was the main feature until the 11th when I, accompanied by spouse, made a weekend trip to the New Forest. Here, portable m.v. light was run on the heathland near Lyndhurst between 9.20 and 11.00 p.m. Despite a chill wind and a clear moonlit night, five specimens of *C. cinctaria* including one very pale specimen arrived, along with several *Peridea anceps* Goeze among a total of 11 species. The following morning a ground frost was in evidence in Hollands Wood campsite! The day of the 12th produced a mixture of cloud and sunshine and two specimens of *Boloria euphrosyne* L. were seen on the railway bank near Brockenhurst in the early afternoon. In mid-afternoon we adjourned to Whiteparish where several specimens of the longhorn *Nematopogon swammerdamella* L. were taken. The sky clouded over most conveniently at dusk and a very good concourse of moths arrived at the portable m.v. Between 9.30 and 11.30 nineteen species of macro were noted including good numbers of *P. anceps*, *Ectropis consonaria* Hübn. and *Thera variata* D. & S., a few each of *C. coryli* and *N. confusalis* and one fine specimen of *Cyclophora annulata* Schulze. Two specimens of the fascinating micro *Alucita hexadactyla* L. were also taken. Warm but stormy weather was the predominant feature of the latter half of May and I spent several productive evenings with portable m.v. at Nomansland Common. The first of these was on the 17th when I took 20 species between 9.25 and 11.15, the best of which were *Eupithecia abbreviata* Steph. (several melanics), *Drymonia ruficornis* Hufn. (one female), *N. revayana* (one), *Drepana binaria* Hufn. (one) and *Chloroclystis v-ata* Haw. (two). On the 18th we made a trip to the Forest of Dean in Gloucestershire where sultry and warm conditions prevailed. Portable m.v. in the Scenic Drive just off the Blakeney-Coleford

road produced a total of 34 species of macro which included an abundance of *P. anceps* (including one fine melanic male) and *N. confusalis*, several of *D. ruficornis* and *Lampropteryx suffumata* D. & S., and single specimens of *P. flammea*, *Chesias rufata* F., *Drymonia dodonaea* D. & S. and *Xanthorhoe designata* Hufn. On the 19th, at Chipping Norton, Oxfordshire, I noted a number of *Anthocharis cardamines* males, and beat larvae of *Philereme transversata* Hufn. from buckthorn, also several different species of larvae from blackthorn including some *Chloroclystis rectangulata* L.

The warm, humid weather continued and on the 21st, m.v. at Symondshyde Great Wood produced 12 species including several melanic *C. coryli*, a few male *Dasychira pudibunda* L. and single specimens of *Biston betularia* L. (melanic), *Menophira abruptaria* Thunb. and *Petrophora chlorosata* Scop. The last named was distinctly scarce this year—it is usually a veritable plague in May and June. On the 22nd things began to liven up with a really outstanding night's sport at Nomansland Common when 32 species of macro came to light in two hours. Foremost amongst these were six specimens of *Lobophora halterata* Hufn. and one *Acasis viretata* Hflbn., along with a further female *D. ruficornis*, two *N. revayana*, single specimens of *Ligdia adustata* D. & S. and *Electrophaes corylata* Thunb., a few *Eupithecia exigua* Hübn. and several each of *Lomographa temerata* D. & S. and *L. bimaculata* F.

More settled conditions ushered in the beginning of the Spring Holiday and a visit to the Chilterns with portable m.v. on the 24th produced a fine *Ptilodontella cucullina* D. & S., two *Stauropus fagi* L., numerous *Drepana cultraria* F., an abundance of *C. coryli* and at dusk a specimen of *Cepphis advenaria* Hübn. We drove on to Chipping Norton in the early hours of the 25th and later on that day visited the rough grasslands and disused quarry at Kilkenny on the Cotswolds, about six miles from Cheltenham. There *Erynnis tages* L. and *Coenonympha pamphilus* L. were common and that ubiquitous Geometrid *E. atomaria* was in great abundance and variety with some very lightly marked white females. The following day we camped at Llandogo, in the Wye Valley. Walking along the river bank nearby in the evening we flushed a number of geometrids from the herbage, the best of which was an example of *Euchoeca nebulata* Scop. We then ran the m.v. in the woods above Tintern from 9.45 until 12.45 the next morning. It was an excellent night with 55 species, the best being single specimens of *Harpyia bicuspis* Borkh. and *H. bifida* Brahm. Others of note were *C. advenaria*, *E. consonaria* (including two specimens of the form *waiensis*), *C. rufata*, *Perizoma affinitatum* Steph., *Plagodis pulveraria* L., *Abraxas sylvata* Scop., *Discoloxia blomeri* Curt., and *Eilema sororcula* Hufn. A Robinson trap operated nearby with an actinic tube attached produced 13 species including *P. pulveraria* and *X. designata*. The 27th dawned fine and bright, but skies soon clouded over, though not before I had noted several *Panemeria tenebrata* Scop. and

taken one, the first time I had seen this insect since 1963. Other species of interest were *Tyria jacobaeae* L. of which one specimen with dove-grey forewings was taken, and *Saturnia pavonia* L. the males of which were fairly common and, seemingly, in fresh condition. We journeyed back to Harpenden in the evening, arriving back at 10 p.m., whereupon I immediately hied to Nomansland Common and operated portable m.v. there until midnight. Outstanding among 40 species noted there were single specimens of *Rheumaptera cervinalis* Scop. and *Tyta luctuosa* D. & S. Also taken were two further *L. halterata*, one *A. virescens* and an abundance of *E. corylata*. On the 30th *L. halterata* and *A. virescens* were again noted at light among 31 species in the same locality.

June opened with cool days and unseasonably cold nights. On the 1st of the month, a number of *Asthenes abulata* Hufn. were noted flying about an hour before sunset around a small copse midway between the outskirts of Harpenden and Nomansland Common. This is the first indication that the species occurs in substantial numbers in the immediate area. A visit to Salcey Forest near Northampton on the 3rd showed *Leptidea sinapis* L. to be much commoner than I have ever seen it before. The weather was unsettled with fairly frequent showers and we soon departed for home, visiting a spot on the way at Dunstable Downs just below Whipsnade Zoo. There we found a small colony of *Cupido minimus* Fuessly and I was delighted to take a specimen of this butterfly with much reduced spotting on the underside. I also took two specimens of *Adscita geryon* Hübn. and noted *Aricia agestis* D. & S. and *Polyommatus icarus* Rott. in some numbers.

Much more settled conditions returned on the 6th and I took two days' hastily arranged leave and headed for the Wye Valley via the Cotswolds. At Kilkenny in the afternoon lepidoptera were in abundance and a specimen that I took of *Coenonympha pamphilus* L. had the apical eyespot practically obsolete. *E. atomaria* was again common, and several each of *C. minimus*, *Perizoma albulata* D. & S. and *Parasemia plantaginis* L. were seen. This area is noted for a colony of *Zygaena trifolii* Esp. with a high percentage of confluent specimens and this occasion was no exception with several fine examples being seen. Continuing on my journey, I took the motorway down to the Wye Valley, arriving an hour before sunset. After pitching camp, I walked along the river bank, taking specimens of *X. designata*, *P. affinitatum*, and *E. nebulata*, and then drove to the woods above Tintern which had given me such excellent sport ten days previously. On this clear, but warm night, the portable m.v. produced 67 species including several *D. blomeri*, a female *L. halterata*, *Tethys* or D. & S., *Hydriomena impulviata* D. & S., *B. crassalis*, *Lithacodia pygarga* Hufn., and a few worn *P. pulveraria*. I returned to my lonely tent at 1 a.m. and the following morning headed once again for Charterhouse. This area has been designated an educational nature reserve so its continued survival is hopefully guaranteed. There are still some

prolific spots outside the reserve boundaries and these produced two specimens of *P. tenebrata* and one of *Adscita statice* L., several *Boloria selene* D. & S., one *Euphydryas aurinia* Rott. and a specimen of *P. icarus* with reduced hindwing spotting. From Charterhouse I proceeded to Bratton Camp near Westbury, Wilts., where many butterflies were on the wing. *Lysandra bellargus* Rott. was fairly common and is clearly recovering in numbers in this area. A few each of *E. aurinia* and *Hamearis lucina* L. were seen and *P. geryon* was very common in one area. *C. minimus*, *Erynnis tages* L. and *P. icarus* were all common, and I took an *A. agestis* with reduced spotting on the hindwing. Leaving this productive spot, I drove to Surrey where at White Downs I noted 58 species of moth including *C. advenaria*, *P. affinitatum*, *Acronicta alni* L. and several each of *Lacanobia contigua* D. & S. and *Agrotis cinerea* D. & S. Operations continued until well after midnight.

The following day, the 8th, I returned to Harpenden briefly, collected my wife and departed again for the Breck district. That evening at our usual fenland venue we used both portable m.v. and an actinic trap. Moths came freely to the sheet and by 1 a.m. we had recorded 67 species. *Oligia fasciuncula* Haw. was very abundant and in great variety, while *Earias clorana* L. and *Lacanobia suasa* D. & S. were both fairly common. Other species of interest included *Ochropacha duplaris* L., *Apamea unanimitis* Hübn., *Eupithecia subumbrata* D. & S. and *E. linariata* D. & S. However, it was when we went to inspect the actinic traps that the real surprises came in the form of a fine *Mythimna obsoleta* Hübn. inside the trap and a *Lithostege griseata* D. & S. resting on the grass nearby.

On the 9th we drove on to the Norfolk Broads, pitching camp near Potter Heigham. I wished to renew my acquaintance with *Papilio machaon* L. and to introduce my wife to this splendid insect, and so we both walked up the long straight lane from the main Yarmouth road to Heigham Sound where we were almost immediately rewarded by the sight of a number of *machaon* flying some distance away among the reed-beds, and occasionally swooping over the dyke on which we were standing. Although local, this butterfly seems abundant where it occurs, and it is my confirmed opinion that, owing to the inaccessibility of many of its haunts, it is highly unlikely to be exterminated by even the most avaricious of collectors. The area we visited abounded with almost impenetrable brambles, thistle, nettles and burdock on the dykes, and treacherous terrain was in evidence among the reed-beds. We spent that evening with portable m.v. on the edge of a large reed-bed about a mile from Potter Heigham. The outstanding feature was the abundance of *Senta flammea* Curt., about 50 being seen in just over two hours. With these were five *Simyra albovenosa* Goeze, three *Hydriomena impluviata* D. & S., and a single *Spilosoma urticae* Esp. *Spilosoma lubricipeda* L. was very common, and one specimen was so marked as to be wrongly identified as a second *urticae*. I did not find out my mistake until the next

day. In all 52 species of macro were noted along with the Pyrales *Nascia ciliaris* Hübn., *Cataclysta lemnata* L., and *Nymphula nymphaea* L. Thus ended four days of hectic and very profitable collecting. Back in Hertfordshire my garden m.v. trap was graced by *C. cucullina* on the 11th, but portable m.v. at Nomansland on the following day produced only 26 species, the best of which was *Eupithecia venosata* F.

Dungeness was our venue on the evening of the 15th where, despite a stiff breeze, 47 species of macro put in an appearance, the most noteworthy of which were *Arctia villica* L. (four), *Hadena albigata* Borkh. (several) and *A. cinerea* (several, mostly past their best). *Deilephila elpenor* L. was common but only a few *D. porcellus* L. were noted. *Hepialus lupulinus* L. was abundant at dusk and included some almost white specimens. Owing to the ignominious collapse of our inflatable tent earlier, we were obliged to return to Harpenden that same night, arriving there just in time to hear the first blackbird serenading the dawn! After a few hours snatched sleep we were off again, on another trip to Breckland. During the late afternoon we explored an area around Herringwell and beat two specimens of *Idaea trigeminata* Haw. from bushes bordering a lane. Several males of *Macrothylacia rubi* L. were seen on some open ground farther on, and two specimens of the local Pyrale, *Homoeosoma sinuella* L. Once again we worked our chosen locality for m.v. light, the fen near Lakenheath, and despite some breeze and a full moon, boxed some fine moths including further specimens of *L. griseata* and *M. obsoleta*, *Epirrhoe rivata* Hüb. (four), *Sideridis albicolon* Hübn. (one), *Heliophobus reticulata* Goeze. (one) and *Acronicta tridens* D. & S. (one). A total of 70 species of macro were noted in addition to three specimens of the Tortricoid moth *Endothenia quadrimaculana* Haw.

Less settled weather ushered in the following week but by Friday the 22nd it had improved again and we journeyed to Hampshire to operate portable m.v. at Havant Thicket. Despite clear skies and rather cool conditions I recorded 53 species of macro including two *Apoda avellana* L. and one very fresh *Momium alpinum* Osbeck. *Comibaena pustulata* Hufn. was common including many in mint condition; other interesting species were *Semiothisa notata* L. (two), *H. impluviata* (one) and *S. lutea* (a virtually spotless male). Among numerous Tortricids I took a specimen of the local *Epinotia demarniana* Fischer. We then returned to stay with Mr. and Mrs. Peter Rogers who had most kindly offered to put us up for that night. The following day we drove on to the New Forest, and concentrated our daytime activities on an area of boggy heathland near Picket Post. Half a dozen specimens of *Eustrotia uncula* Clerck. were taken in the wetter parts of this area in the late afternoon and *Crambus pascuella* L. was everywhere. We operated the portable m.v. on the heaths between Lyndhurst and Beaulieu recording 50 species of macro between 10 p.m. and 12.30 a.m.

(to be continued)

Notes on the Duration of the Pupal Stage of some Swallowtails of El Salvador (Lep.: Papilionidae)

by ALBERTO MUYSHONDT and ALBERTO MUYSHONDT, JR.
101 Ave. N. ||322, San Salvador, El Salvador

In the course of rearing, on several occasions since 1968, many individuals of the species *Battus polydamas* L., *Papilio thoas* L., *P. cresphontes* Cramer, and *Eurytides epidaus* Doubleday, we have determined the usual time spent by these species in the pupal stage in El Salvador.

Battus polydamas, whose larvae feed on several local Aristolochiaceae, takes from 10 to 18 days. Young reports in Costa Rica they take from 14 to 16 days (1971, *Ann. Entomol. Soc. Amer.*, **60**:595-599). *Papilio thoas*, whose larva feeds on various species of Piperaceae, not on citrics as reported by several authors, takes 16-17 days as pupa. Ross's records for Veracruz, Mexico, 10 days (1964, *Jour. Res. Lep.*, **3**(4):207-229). *Papilio cresphontes*, whose larva feed on Citrics and other Rutaceae: *Ruta graveolens* L., *Casimiroa edulis* Llave and Lexarza, takes usually 16 days. *Eurytides epidaus*, whose larva feeds on various species of Annonaceae, and whose pupa is dimorphic, being at times light green and at times light brown, takes in either case 10 days. Serrano and Serrano report two biological cycles a year (1972, *Comunicaciones*, 2a. Epoca. **1**:48-78).

These have been the normal data obtained from rearing many individuals during practically every month of the year, whether in the rainy or dry season, except for *E. epidaus*, which has been reared only during June, July and August. The rainy season in El Salvador covers the months from May to October and the dry from November to April. Yet, on some occasions, the pupal stage of these species has been unexpectedly prolonged in some individuals.

One of us (A.M.), reported a case of three pupae of *B. polydamas* out of a brood of seven, which lasted 110, 150 and 199 days respectively (1974, *J. Lepid. Soc.*, **28**:174-175).

One pupa of *P. thoas*, out of four eggs collected the same day at the same locality, spent from 4th December, 1973 to 30th April, 1974, producing a healthy male. Time elapsed as pupa was 147 days.

A good friend of ours, Victor Hellebuyck, showed us one pupa of *P. cresphontes* which lasted from 24th December, 1972 to 23rd December, 1973, when a healthy male emerged. Total time as pupa was 364 days!

During 1973 we collected nine larvae in third instar of *E. epidaus* from a single tree of *Annona purpurea* Mociño and Sessé, which pupated between the 22nd and 25th August. Five pupae did not emerge after the normal 10 days as did the other four, but were left in the pupating cage. After three months one of them was sacrificed to check if anything was wrong with it, and was found to be fresh and apparently healthy. Two months later a second pupa was dissected and again it

was found to be all right. So the remaining three individuals were left alone. All of the nine pupae were of the brown morph. On 27th February, 1974, a male emerged from one pupa that had formed on 22nd August, the pupal stage thus lasting 189 days. On 16th April, 1974, a female emerged from a pupa formed on 25th August, 1973, this after 234 days of pupation. The next day the remaining pupa produced a second female. This one also was from 25th August, 1973, and had lasted 235 days. It is worthwhile to emphasise that the nine larvae were kept at all times with fresh leaves of the same foodplant in individual plastic bags which were cleaned every day and kept under similar ambient conditions until pupation, when the pupae were transferred to a wooden cage with windows protected by mosquito-netting, until adult emergence. Ross (*loc. cit.*) mentions the results obtained by Comstock and Vazquez (*Anales Inst. Biol. Mex.*, XXXI: 339-448) with pupae of *E. epidaus tepicus* Rothschild and Jordan, which spent nine days, having pupated during August. His own experience with four individuals of *E. epidaus epidaus* (Doubleday, Westwood and Hewitson), which is the same subspecies found in El Salvador, was 201 days in pupation. He warns the reader that his specimens spent three-and-a-half months under natural conditions in Mexico and nearly three months under laboratory conditions in Louisiana, U.S.A. before the adults emerged.

According to data from the Servicio Meteorológico Nacional (1972, *Almanaque salvadoreño*) in El Salvador, temperature conditions on the shoreline (where *epidaus* is very abundant at the beginning of the rainy season) are within maximums 31.1-32.5°C. (highest being April) and minimums 21.4-24.2°C. (lowest being January). The corresponding figures for San Salvador area, where our studies have been carried out, are 29-32.5°C. and 15.9-18.8°C. It is evident from these figures that temperature is not the factor causing the reported phenomena in the four species of Papilionidae; if very low temperatures occurred, it would be understandably a state of hibernation. Is rainfall then the responsible agent? Ross (*loc. cit.*) seems to give this thought some consideration: "It is likely that the eastern subspecies *epidaus* found in Veracruz undergoes a pupal diapause through the period of heaviest rains (September-January) and emerges as an adult after drier weather begins (February-March). To be sure, half the time my pupae were under artificial conditions. However, I believe that the 3½ months diapause under natural field conditions is justification for the above suggestion."

In El Salvador the rainy season ends in October, and from November to April it is dry. So rainfall does not seem to be the explanation either, especially when other specimens reared simultaneously did perform normally, adults having emerged within the expected time limits.

We agree, with some reservations, with what F. Slansky says in his paper (as yet unpublished) on relationship of larval foodplant and voltinism pattern in temperate butterflies: "What selective forces cause the complex voltinism pattern exhibited

by a number of butterfly species in which part of a brood becomes dormant while the remainder continues normal development (Scudder, 1889)? Perhaps this may allow these species to exploit marginally favourable periods while maintaining a reserve population for the usually favourable season . . .” Our reservations arise from the fact that in our experience the dormant pupae produced the imagines precisely during the period when conditions were dry, and it happens in El Salvador that the butterfly population diminishes to a minimum towards the peak of the dry season (February-April), and starts to build up again when the rainy season is well established (July onwards).

It is our opinion Papilionidae in El Salvador (and most probably elsewhere as well) have developed the faculty of producing adults at different intervals in order to ensure the continuity of the species in case of disasters destroying the existing active population. Something like humans, their popular wisdom has come to the conclusion: do not put all your eggs in one basket!

Notes on a Colony of *Synanthedon vespiformis* L. (Yellow-legged Clearwing) in S.E. London (N.W. Kent) with Special Reference to the Breeding Site

By A. A. ALLEN, B.Sc., A.R.C.S.

49, Montcalm Road, London SE7 8QG

Whilst examining elm trunks with flowing sap, rot holes, etc., in an avenue just off Blackheath, on 29th July 1972, I came upon a fresh example of *S. vespiformis* at rest on a large rounded excrescence on the trunk of a wych elm—the first specimen of this handsome moth and I had met with in the district. Closer inspection of the woody swelling on later visits revealed quite numerous empty pupa-cases sticking up through emergence-holes which were scattered at random over it, but not one was to be seen outside its confines on the sound wood. The following year, however, a similar but smaller, smoother excrescence on the roots, just breaking through the soil, likewise had its quota of pupa-cases. The indications were thus of a strong but very restricted colony; and the peculiar preference shown was abundantly confirmed by the fact that on no other tree in the avenue, including fairly fresh stumps, was any sign of the species to be found by close scrutiny on any of the numerous visits made, except for a few more pupa-cases protruding from each of two much smaller swellings on nearby elms—the three trees that harboured the insect being the only ones in the avenue (out of a total of some 30) seen to be cankered. That the pupae

really were those of the clearwing was proved by breeding a moth from a living one dug out from under the surface; and a white larva earlier extracted from the large canker produced an identical pupa (enclosed in a tough leathery cocoon) though the imago failed to emerge.

On 11th August 1972, in bright afternoon sunshine, a second specimen was found resting on the large growth. It was very sluggish, but a third which arrived in about 15 minutes was far more alert. All four moths obtained were females, to judge by their dorsally yellow tail-fans. The spot is deeply shaded for much of the day and thus little suited for seeing the clearwings in flight—difficult at the best of times; possibly they ascend high into the trees for sunlight. During the two following seasons, though no more adults were encountered, the extruded pupal shells were again present in good numbers—showing the colony to be well established.

Further negative evidence serves to reinforce the noteworthy feature of this case: namely, that over the years, in the same district, on none of the several occasions when I have had suitable stumps of elm or other trees under observation for Diptera, etc., in ideal weather, have I ever seen a trace of *S. vespiiformis* in any stage as one would expect to now and then (either as a moth, or larvae under bark of recently cut wood)—given the fact of its occurrence in the area. Everything, therefore, seems to point to its virtual restriction *in this district* to morbid excrescences on trunks (and notably on elm) as the breeding site.

I cannot help thinking that this is a habit of the species little known or seldom observed in our country, and Mr. B. R. Baker (of Reading), who is currently engaged in a study of the British Sesiidae, agrees. As to Continental authorities, he informs me that Seitz records the larvae “also in rough swellings and cancerous growths of old trunks” (but that the reference here is to oak) and lists also sweet chestnut, walnut and beech (under the bark) but, I understand, not elm. Of the few British works that I have consulted, only an early one (Newman) and a recent one (South, ed. 2) mention elm, but not in the context of these growths. Mr. Baker has examined the latter on oaks, but only found larvae in and under the bark of the stumps, which I believe is true of the majority of entomologists in Britain—certainly of myself up to the time of the experience reported above.

Finally I would draw attention to two apparent inaccuracies in the descriptions—again in respect only of those standard British works that I happen to have seen. First, they describe the legs as (largely) yellow (Meyrick, Barrett, South), from which one would naturally presume the femora to be (largely) yellow, nothing being said as to their colour; in fact *the femora are blue-black*. Second, they describe the caudal tuft of the female as almost or quite all yellow (Newman, Barrett, South); in fact *it is medially black beneath*, with some admixture

of yellow. These discrepancies, doubtless not very serious in themselves, did however lead me to wonder whether there could be two species mixed under the one name, and as beginners may be puzzled by them I think they should be pointed out.

P. B. M. Allan: An American's Tribute

By RONALD S. WILKINSON

228 Ninth St. N.E., Washington D.C. 20002, U.S.A.

Upon almost simultaneously receiving the April and May/June issues of *The Entomologist's Record*, I learned with great sorrow of the death of my friend and correspondent, P. B. M. Allan, on 31st December 1973.

Readers of the *Record* might be interested in a few facts about the life of the "Old Moth-Hunter" supplementary to those given in his April obituary. He was born in 1884, the son of Alexander Allan and Frances Ann Hamilton-Beattie. In 1914 he married Elsie Kate, daughter of James Whitehead. Having been employed as reader at Smith, Elder & Co. in 1912 and as assistant editor of *The Cornhill Magazine*, 1912-14, from 1919 to 1932 he headed the publishing firm of Philip Allan & Co. He was elected F.R.E.S. in 1944, and the date of his M.B.E. was 1945.

In his *Record* obituary, I.A. stated that Philip Allan was "the author of three books, *A Moth-Hunter's Gossip*, *Talking of Moths* and *Moths and Memories*". All this is true enough, but Mr. Allan's versatility was reflected in a number of other books, either written, compiled or translated by him. For lepidopterists he produced another volume, *Larval Foodplants* (London, 1949), a handbook of considerable utility. But Allan's interests ranged far afield from collecting sites. To collectors of rare books, he is best known as author of one of the standard volumes on the subject, *The Book-Hunter at Home* (London, 1920; 2nd ed., 1922). His chapters on the formation and care of a library of antiquarian books and his plea for specialisation in book-collecting helped to guide several generations of bookmen, and his book itself has now become uncommon and somewhat expensive due to the demand of present-day bibliophiles. In it, as in all his works, he demonstrated the wit and facility with language well known to readers of his entomological volumes. *The Book-Hunter at Home* was also published in the United States, where it was well received and is still enjoyed by American collectors. P. B. M. Allan was of course himself a discriminating and knowledgeable collector of books who wrote from experience.

Although his other volumes should receive but brief notice in an entomological journal, their range illustrates his versatility. *Trout Heresy* (London, 1936), a book for anglers, was published under his own name, but those who are familiar with his pseudonyms of "Old Moth-Hunter" and "O.M.H." may

not know that a number of his books appeared under other *noms de plume*. For example, as "Francis Cabochon" he wrote a novel, *The Golden Ladies of Pampeluna* (London, 1934). As "O. Eliphaz Keat" he translated Alexandre Dumas' version of a tale by E. T. W. Hoffmann as *The Delectable Story of Princess Pirlipatine and the Nutcracker* (London, 1924). As "Alban M. Phillip" he wrote *The Prison-Breakers: A Book of Escapes from Captivity* (London, 1927) and compiled *A Boy's Book of Verse* (London, 1924). The *Prison-Breakers* was reprinted in the United States as recently as 1971. As "Philip Murray" he produced a new edition of the exploits of Baron Friedrich von der Trenck as *The Strange Adventures of Frederick Baron Trenck* (London, 1927). Those interested in Allan's other full-length efforts can trace them, at times with difficulty, in the printed catalogue of the British Museum. Of course Allan wrote numerous articles, and his entire bibliography would fill a small volume.

My own interest in the history of entomology was kindled long ago by reading *A Moth-Hunter's Gossip* (London, 1937; 2nd ed., 1948), and during the course of research for many subsequent publications of my own, P.B.M.A. was a frequent benefactor. A few anecdotes about our relationship will illustrate his kindness to other investigators. After a correspondence of some extent, Mr. Allan invited me to his home during my residence in England for the academic year 1965-66. Then into his eighth decade, he met me at the Bishop's Stortford station with an automobile and driver. Although ill and having to walk with the aid of a stick, he entertained me with wit and vigour at a local inn at a fine luncheon with a Chateau Latour of excellent vintage. He recalled with vivid memory and considerable humour his early experiences with both moths and books, which antedated my own by half a century. We were then driven to his ancient and picturesque home at No. 4, Windhill. Mr. Allan's library had recently been damaged by water, due to the failure of a workman to tighten a joint in a pipe, and under the circumstances a number of volumes were laid out to dry. Because of the situation he seemed disinclined to show me his books *in toto*, and I certainly did not press the matter. He was, however, kind enough to bring out several volumes which he especially wanted me to see.

When in the course of conversation it came out that my copy of the 1937 edition of *A Moth-Hunter's Gossip* unfortunately wanted its dust-jacket, he generously presented me with an almost pristine copy, which he inscribed "With every good wish to / my fellow-worker in / America, from / P B M Allan / 13. xi. 1965". At the time of my visit, Mr. Allan had partially completed the typescript of a yet unpublished sequel to *Moths and Memories*, and we spent much of the afternoon discussing his new book and exchanging information. One of the chapters concerned the mysterious "Lady" Glanville of *Melitæa cinxia* fame, a subject upon which he had already

contributed valuable comments to the *Record*. Upon hearing that I had recently been investigating the problem of Mrs. Glanville's identity and was about to publish a paper about her in the *Entomologist's Gazette*, he most graciously removed his own Glanville chapter from the typescript and presented it to me to use as I wished. During the afternoon he recalled much interesting information about his other books, such as the fact that due to wartime shortages less than one hundred copies of his scarcest entomological volume, *Talking of Moths* (Newtown, 1943) were printed, and that he had set much of the type with his own hands.

As it happened, I never again saw P. B. M. Allan personally; his illness thwarted several subsequently planned visits. We continued to correspond on topics ranging from our disagreement about the reason for captures of *podalirius* in England to his late advocacy of the old method of setting Lepidoptera on blocks wound with thread. When in January 1974 I was in London on a research trip, I was unable to reach Mr. Allan by telephone, and I sent a telegram requesting the pleasure of a visit, as I wished permission to dedicate my forthcoming book on the history of entomology to him. There was no reply, and until recently I was unaware of the reason; that P. B. M. Allan, in the words of his own "auto-obituary" (printed in the May/June *Record*) "went to earth" only a few weeks earlier.

The "Old Moth-Hunter", now "*box'd securely, lies relaxed at last*". To entomologists, his legacy is his charming and ably written volumes and papers on the British Lepidoptera. When I complimented him on his literary style, he insisted that Augustus Radcliffe Grote was much the better entomological writer in that regard. But P. B. M. A.'s readers will have to decide that for themselves; at any rate, his books and articles will continue to inspire investigators of both the subject and its history. The latter facet of his work must not be overlooked, for he was a pioneer in the recording of early aspects of British entomology. To workers in the evolving field of the history and bibliography of entomology, a phrase from his own epitaph has a double meaning which he did not imply but is yet relevant:

... ponder on the
metamorphosis
that awaits you.

URESPHITA LIMBALIS D. & S.: POLYGONALIS SENS. AUCT. (LEP.: PYRALIDAE) IN 1974. — On 14th September, 1974 I took at m.v. light at Aldwick Bay, Sussex, a striking yet unfamiliar moth. I submitted it to Dr. J. D. Bradley who kindly identified it as this rare immigrant. —RONALD R. PICKERING, 4 St. Mary Abbots Terrace, Kensington, London, W14 8NX.

A Rationale for Abnormal, Male-dominated Sex-ratios in Adult Populations of *Zygaena* (Lep.: Zygaenidae)

By M. R. SHAW

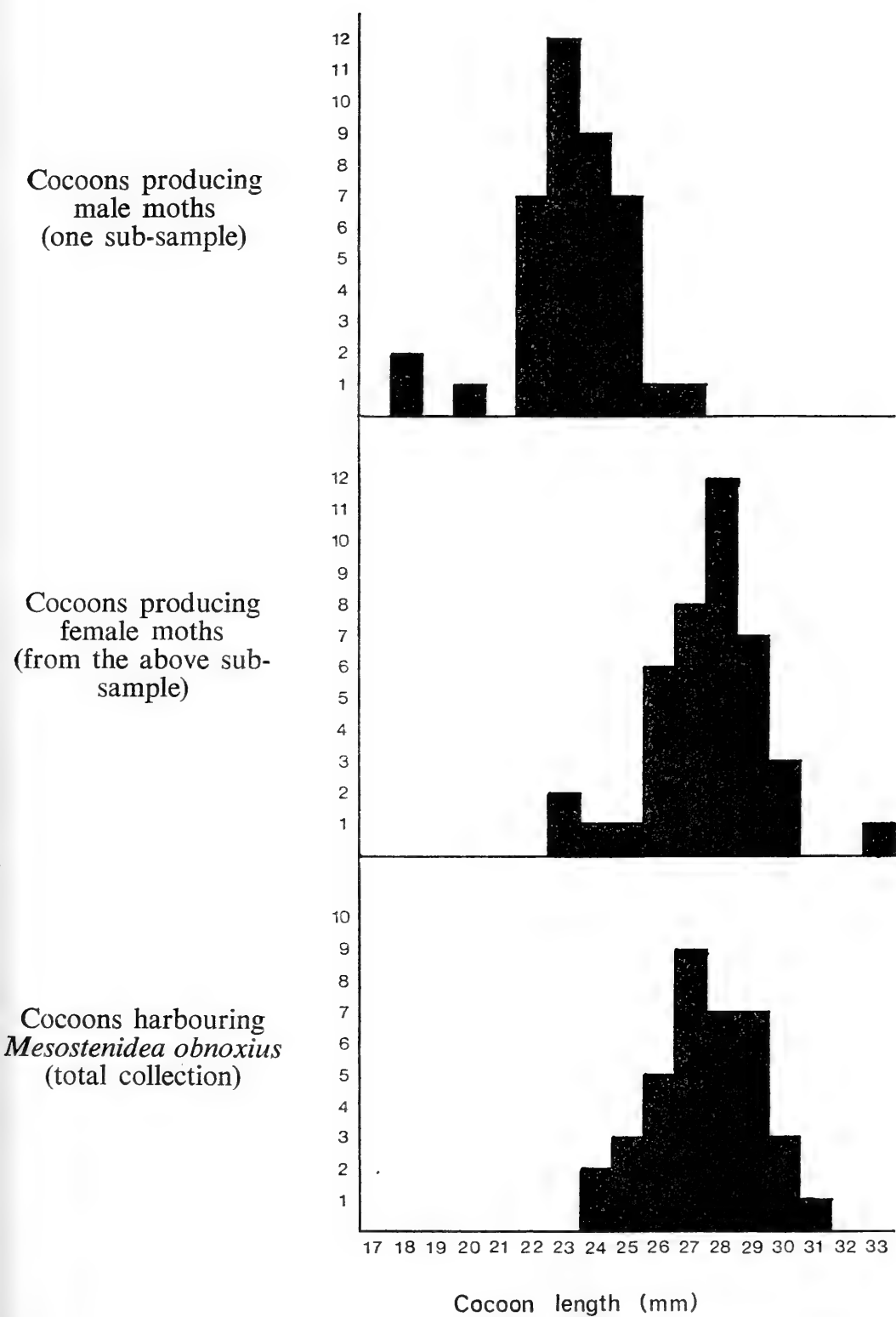
Department of Zoology, University of Manchester

A recent paper (Larsen, 1974) in this journal reports the discovery of an apparently male-biased population of *Zygaena carniolica* Scopoli in the Lebanon and speculates as to the possible biological significance of such a finding. This has stimulated the present author to submit part of the results from a study of the parasites of *Zygaena filipendulae* L. in the hope that some light may be shed on this interesting phenomenon.

Most of the primary parasites of *Zygaena*, at least in England, show a high degree of host-specificity, and normally attack hosts of no other genus. For this reason, and also because the host colonies are often more-or-less static, *Zygaena* parasites will tend to act as delayed density-dependent mortality factors and, under certain circumstances, may attain a high percentage parasitism of their hosts. One of the genus-specific parasites of *Zygaena* in England is *Mesostenidea obnoxius* (Gravenhorst) (Hym.: Ichneumonidae) which develops as a solitary ectoparasite of pupae and prepupae inside the host cocoons, oviposition taking place after the host has spun up. During the summer of 1973 the author sampled *Z. filipendulae* cocoons at Abbots Moss in Cheshire, a site at which *M. obnoxius* was present, although at that time not particularly common. The moths which emerged from one sub-sample were sexed and, as a matter of routine, the lengths of their cocoons were measured. All of the cocoons containing *M. obnoxius* were measured in the same way, and these data are collected in histogram form below, where it will be seen that the parasite very definitely tends to select the largest cocoons available to it which are predominantly of female moths. The bionomic implications of this are interesting, for it appears that the parasite must exert an influence on the subsequent host population disproportionate to its actual level of parasitism. Although at first sight this suggests a potentially wasteful over-exploitation of the host by its parasite, it may possibly be of adaptive significance in permitting the out-of-hand rejection of *Zygaena* cocoons harbouring the usually abundant endoparasitic Ichneumonid *Casinarina orbitalis* (Gravenhorst), which are presumably unsuitable for the development of *M. obnoxius* and also considerably smaller than those of healthy hosts owing to the parasite's development in the growing larva.

Returning now to the population of *Z. carniolica* discussed by Larsen, it was noted that of the 456 cocoons collected only 170 produced moths, and "most of the rest were parasitised". Supposing that a parasite of *Zygaena* cocoons behaving in a way similar to that found in *M. obnoxius* were present, it would be simple to determine roughly the level of parasitism

Frequencies of cocoon length of *Zygaena filipendulae*
from Abbots Moss, Cheshire, 1973



it would need to achieve in order to account for the anomalous sex-ratio observed. Of the 170 moths to emerge from the cocoons two-thirds were male; i.e. about 57 females were inexplicably "missing" from the sample of 456 cocoons. A parasite attacking only female cocoons would produce this result at a level of around 12% (i.e. parasitising 25% of the otherwise viable host cocoons), and one attacking females and males in a ratio of 5:1 (below the lowest estimate for the bias reported here for *M. obnoxius*) would still require only an 18% level of representation to account for the results. For a colonial host likely to have specific parasites these figures are well within the range one might reasonably expect.

Reference

Larsen, T. B. (1974). A possibly Abnormal Sex-ratio in *Zygaena carniolica* Scopoli (Lep.: Zygaenidae). *Ent. Rec.*, **86**: 165-167.

New Forest Mercury Vapour Light Records for 1974

By L. W. SIGGS

Sungate, Football Green, Minstead, Lyndhurst, Hants.

1974 was another poor year; indeed, the worst since the Robinson trap was started in 1962. The months of April, July and October were the lowest recorded and only March was above average. Nights without low temperature, rain or strong wind were exceptional.

	Nights	Specimens		Species
		Total	Average	Average
March	17	1,186	70	8
April	30	1,732	58	9
May	31	669	22	12
June	29	2,986	103	32
July	31	4,410	142	43
August	31	3,818	123	37
September	30	1,698	57	15
October	31	709	23	6
November	20	439	22	5

The total number of species recorded was 316.

In contrast to last year, only one species — *Cerastis rubricosa* D & S. — put up a record. 211 specimens came to the trap, the previous highest being 187 in 1965.

There were three additions to the Minstead list: —

Agrotis trux lunigera Steph.

Discoloxia blomeri Curt. (The first Hampshire record.)

Eupithecia satyrata Hübn. (determined by Mr. D. S. Fletcher).

The following species, which are occasional here, were recorded: — *Agrotis clavis* Hufn., *Tethea* or *D. & S.*, *Moma alpium* Osbeck, *Elaphria venustula* Hübn., *Euxoa tritici* L., *Archanara sparganii* Esp., *Diloba caeruleocephala* L., *Idaea*

muricata Hufn., *Scopula marginepunctata* Goetz, *Chesias legatella* D. & S., *Ectropis crepuscularia* D. & S.

A late emergence of *Lacanobia contigua* D. & S. on 7th August is perhaps worth recording.

Migrants

In such a poor year generally an influx of migrants could not be expected, and, as the figures show, did not appear. *Autographa gamma* L. (47), *Peridroma saucia* Hübn. (*porphyrea* sensu Edelsten) (1), *Agrotis ipsilon* Hufn. (13), *Lithosia quadra* L. (1), *Rhodometra sacraria* L. (1), *Nomophila noctuella* D. & S. (10), *Plutella xylostella* L. (*maculipennis* Curt.) (3).

Polymorphism

<i>Biston betularia</i> L.	<i>Idaea (Sterrha) aversata</i> L.
typical 86 (90%)	<i>remutata</i> 56 (76%)
<i>carbonaria</i> 4 (4%)	<i>aversata</i> 18 (24%)
<i>insularia</i> 6 (6%)	

Allophyes oxyacanthae L., typical 3, ab. *capucina* Esp. 2.

Tholera decimalis Poda (*popularis* F.), typical 24, a pale ab. 1.

Alcis repandata L., typical 48, ab. *consonaria* Hübn. 2.

Eilema deplana Esp., typical 1, vars. 3.

Notes and Observations

LYCAENA PHLAEAS L. AB. SCHMIDTII GERH. IN SURREY, 1974. — This marvellous insect was spotted whilst avidly feeding from a clump of marjoram, but immediately on the sighting it took to the wing. Knowing of the usual habit of this species of returning to its favourite perches, I patiently awaited its further appearance and surely enough was rewarded, as it repeatedly came back, looking most odd in flight with its silvery white wings. I managed to take a really fine series of colour slides of the curious insect in natural positions and including one particularly fine shot of its underside when it held its wings tightly together. An interesting point to note here is that the insect was found in an adjoining Surrey field where in 1973 I photographed *L. phlaes* ab. *radiata*. It seems that there must surely be an aberrant strain here and I look forward to 1975 and what other extreme aberration this *L. phlaeas* colony may throw. — K. J. WILLMOTT, 34 Daybrook Road, Merton Park, London, SW19 3DH.

ZEUZERA PYRINA L. IN YORKSHIRE. — On the evening of 21st August 1974 at about 8.30 p.m., in the company of my father and other members of my family, including my 12-year-old son who first made the observation, I saw a newly hatched Leopard Moth on the wall of The Feather Hotel at Pocklington, near York. Reference to South confirmed it as a male. — MICHAEL REEVES, 25 Ashmount Drive, Rochdale, Lancs. [This species may now be more common in Yorkshire than formerly. Porritt (*List of Yorkshire Lepidoptera* (1904), 21) has "This

species, very common in the south, is seldom seen with us"; on the other hand, Rutherford *et al.* (*The Lepidoptera of Yorkshire* (1970), 46) have: "Not infrequently reported and quite widely distributed."—Editor.]

AGRIUS CONVULVULI L. IN NORTHAMPTONSHIRE. — A specimen of this moth in perfect condition was found in Thrapston in Northamptonshire on 7th October 1974. I think it would be reasonable to assume this to be the offspring of a spring migrant. — P. J. GENT, 3 Irthlingborough Road, Wellingborough, Northamptonshire. [We presume our correspondent bases his assumption on the condition of the insect. However, the view held for many years that perfect condition precluded the possibility of immigration is no longer tenable, since it is now known that certain lepidoptera are capable of traversing immense distances with apparently little damage, if any, to wing structure. But are there any records for 1974 of spring *convolvuli* -or of the larvae or pupae? — Editor.]

AGRIUS CONVULVULI L. IN WARWICKSHIRE IN 1974. — I had just returned from a collecting trip at Studland, Dorset, where I had searched tobacco plants for *convolvuli* without success. Two days after my return however, a worn male came on 18th August to the m.v. trap in my garden next to Hampton Wood, Warwickshire. — A. F. J. GARDNER, Wood Cottage, Grove Fields, Hampton Lucy, near Warwick.

CARADRINA CLAVIPALPIS SCOP. (LEP.: NOCTUIDAE) IN DECEMBER. — I was surprised to find an apparently fresh specimen of this common noctuid resting on the *outside* of my glass kitchen door here in the late evening of 22nd December, 1974. Going through the *Record* I find the following are of interest: A. A. Allen (vol. 69, pp. 245-6) quotes early dates 20.ii.1957, 24.iii.1957; and Cmdr. Harper (vol. 70, p. 29) quotes cases of specimens in Sussex and Inverness-shire as late as December and as early as March, also in a coal mine (in 1913?) all the year round! — ROBERT CRASKE, 29 Salisbury Road, Hove, Sussex, BN3 3AE.

HYPPA RECTILINEA ESP. (SAXON MOTH) AT WITHERSLACK. — My colleague K. Bevan and I were fortunate in each taking a specimen of this moth at m.v. on 15th June, 1974 at Witherslack. Dark specimens of *Apatele alni* L. and *A. leporina* L. also put in an appearance. — D. M. RICHMOND, 1 Walton Terrace, Staining Road, Blackpool.

EUPITHECIA PHOENICEATA L. AND LITHOPHANE LEAUTIERI BOISDUVAL IN SUSSEX IN 1974.—This year while operating in m.v. light intermittently and mainly at week-ends at Aldwick Bay, Sussex (SZ8998), I noted *E. phoeniceata* to it as follows:—24-25.vii (one); 17-18.viii (seven at two m.v. lights, and eight

at an actinic); 19.viii (two at 2100 hrs., one at 2145 hrs., one at 2200 hrs. and one other later); 13.x (one, much worn).

My general impressions are: — (i) that *phoeniciata* is freely attracted to light but apparently more so to an actinic 8 watt lamp than to a 125 m.v. lamp; or, more readily enters an actinic trap than that of an m.v. when they tend to settle outside the latter. (ii) The moth is on the wing at dusk. (iii) The markings appear to conform more generally to fig. 2 on plate 140 of South vol. 2, new edition, 1961.

I have already reported that *L. leautieri* is plentiful at Aldwick Bay. (cf. *Ent. Rec.*, **86**: 29). It may be of interest that in 1974 on the night of 27th/28th October there were 22 *leautieri* in the trap there together with a number of other species including two *Aporophyla nigra* Haw. — RONALD R. PICKERING, 4 St. Mary Abbots Terrace, Kensington, London, W14 8NX.

AN ABERRATION OF *PIERIS ERGANE* (GEYER). — On 29th May, 1974 I was collecting butterflies on the rocky slopes above Mlini, near Dubrovnik in Yugoslavia. I captured a number of specimens of *P. ergane* and noticed later that a female lacked the usual yellow markings on the underside, and is in fact wholly white except for the black tips on the upper forewings. I would be interested to know if this is a named or perhaps unique form, as I have not seen it mentioned in the literature. — A. A. WILSON, 9 Walton Way, Mitcham, Surrey, CR4 1HQ.

CORNISH NEPTICULIDAE. — Among numerous *Nep* mines which I collected in Cornwall in early September 1974, were those of *Stigmella ulmivora* (Fologne) an elm from Manaccan, a new county record; and *Ectoedemia albifasciella* (Heinemann) on oak from Frenchman's Creek, a new vice-county record. I am indebted to Col. Emmet for these determinations. — J. M. CHALMERS-HUNT.

MACROGLOSSUM STELLATARUM L. IN S. DEVON IN 1974. — Since noting a *M. stellatarum* in my m.v. trap on 23rd June, I have recorded the following daylight sightings: — 28.vi (2), 1.vii (1), 14.vii (2), 19.vii (1), 20.vii (1), 23.vii (1), 26.vii (1), 20.viii (2), 2.viii (2), 8.viii (1). All moths were flying along the cliff face at the north end of Clapton Sands. — H. L. O'HEFFERNAN, 3 Coombe Meadows, Chillington, Kingsbridge, S. Devon.

PLUSIA GAMMA L. AND NOMOPHILA NOCTUELLA D. & S. IN S. DEVON IN 1974. — *P. gamma* totals are: — 8th-31st May (m.v. trap in use 21 nights), nil; June (29 nights), 58, with 26 on 24th; July (31 nights), 13; August (31 nights), 47, with 15 on 30th; 1st to 12th September (9 nights), 12, with 8 on 12th. Total for 8th May to 12th September, 130. *N. noctuella* totals are: — May, 1; June, 1; July, 2; August, 6; September, nil.

Total for 8th May to 12th September, 19. — H. L. O'HEFFERNAN, 3 Coombe Meadows, Chillington, Kingsbridge, S. Devon.

CRAMBUS ULIGINOSELLUS ZELLER, A NEWLY RECORDED SPECIES IN KENT. — On the hot afternoon of Sunday, 29th July, 1973 I disturbed a pale looking Crambid from the central bog of Hothfield Common Nature Reserve. When set it appeared to be *Crambus uliginosellus* and this was subsequently confirmed when the specimen was identified by Mr. M. Shaffer at the British Museum (Natural History). This was the first time that this species had ever been recorded from Kent so a further look at the area was carried out by Mr. Steven Whitebread, who found it there again in 1974. Since *uliginosellus* is an insect of bogs and marshes, it seems likely that it is breeding there. — Dr. I. A. WATKINSON, 166 Sterling Road, Sittingbourne, Kent.

NOTE ON THE LARVA OF EPIPHYAS POSTVITTANA (WALKER) IN CORNWALL. — I collected numerous larvae of this moth in West Cornwall, 8th-14th September, 1974, from which I bred a variable series towards the end of that month and throughout October. The larvae occurred to me at St. Ives, Carbis Bay, St. Michael's Mount, Cadgwith, Mullion, Coverack, Porthleven, Penryn, Falmouth and the Lizard, and were mainly in the shoots of the cultivated purple veronica so prevalent in Cornish hedgerows and gardens. Others were on privet, also odd ones on bramble, ivy, rose, *Potentilla* sp., *Filipendula ulmaria* and *Teucrium scorodonia*. Although Bradley, Tremewan, Smith and Hargreaves (*British Tortricoid Moths—Cochylidae and Tortricidae: Tortricinae* (1973), 127) state that in Devon and Cornwall the larva "originally showed a preference for *Euonymus japonicus* but has since been recorded on other plants", curiously I failed to find a single larva on *Euonymus* despite close and frequent searching of that shrub. — J. M. CHALMERS-HUNT.

MYTHIMNA L-ALBUM L. IN ESSEX. — With regard to Mr. Dewick's note on *M. l-album* and the editorial footnote (*Ent. Rec.*, 86: 167), I can confirm that that is the first Essex record of this species. I should perhaps explain that I am a member of the Essex Naturalists' Trust's Panel which is producing a new Essex Macrolepidoptera and that I have been responsible for compiling the systematic list. We hope to publish it this coming autumn.—G. A. PYMAN, Treyarnon, The Ridge, Little Baddow, near Chelmsford, Essex, CM3 4RT.

MIGRANT MOTHS IN SOUTH CORNWALL IN AUGUST 1974. — While staying near Dowerry for two nights the following single specimens of migrant moths appeared in my moth trap: *Agrius convolvuli* L., fresh female, 14th August; *Helicoverpa armigera* Hübn. and *Mythimna vitellina* Hübn. 15th August. — C. S. H. BLATHWAYT, Amalfi, 27 South Road, Weston-super-Mare.

AGRIUS CONVULVULI L. IN LANCS. IN 1974. — A female *Convolvulus* Hawk-moth was found in the grounds of the Northern Lawn Tennis Club, West Didsbury, Manchester, at noon on 5th September by the Head Groundsman, Mr. Alan Arthington. — H. G. ALLCARD, 164 Brooklands Road, Sale, Cheshire.

NOTES ON TWO SPECIES OF MICROLEPIDOPTERA RECENTLY ADDED TO THE BRITISH LIST. — It is natural to feel a kind of parental responsibility for species one has added to the British list and to be more than usually perceptive towards any extension of their known distribution. The note which follows concerns two such species:

(i) *Caloptilia rufipennella* Hübner (*Ent. Record*, **83**: 291-295; **84**: 286-287) This species has now been recorded from the following vice-counties: — VC 19 (North Essex), Littlebury; VC 25 (East Suffolk), Thorpness; VC 26 (West Suffolk), Barton Mills; VC 28 (West Norfolk), Croxton; VC 29 (Cambridgeshire), Chippenham Fen; VC 54 (North Lincolnshire), Woodhall Spa. It seems to be spreading apace and will probably be found in most places in the east of England where sycamores are plentiful.

(ii) *Ectoedemia erythrogenella* Joannis (*Ent. Record*, **86**: 129-130). Though only a year has elapsed since its discovery in Britain, it has already been recorded from the following vice-counties: — VC 9 (Dorset), Portland and Swanage (S. C. S. Brown); VC 11 (South Hampshire), Browndown (D. W. H. ffennell); VC 14 (East Sussex), Newhaven; VC 15 (East Kent), Dungeness; VC 16 (West Kent), Dartford; VC 18 (South Essex), Benfleet; VC 19 (North Essex), Heybridge and Fingringhoe; VC 25 (East Suffolk), Cattawade to Shotley Gate. It has, in fact, been recorded from every coastal county from Dorset to Suffolk with the exception of the Isle of Wight, where it has not yet been looked for, and West Sussex. In this latter county I searched without success between Shoreham and Littlehampton (my only failure so far); the shores of Chichester Harbour should suit it well and it would be surprising if it did not occur there. In most of these localities it is abundant (far commoner than *Stigmella aurella* Fabricius). It always occurs close to the sea and seems to favour estuaries.

When I first found it at Portland, I imagined it had arrived there direct from Vannes, the type locality situated at the southern base of the Brittany peninsula. Now that it turns out to be so common in south-east England, it seems more likely that it first extended along the north coast of France and then made the shorter leap across the Straits of Dover, where it spread northwards and westwards. It must have existed in this country for a number of years without detection for it now to be so well established. The northern and western bounds as given here mark the limits of search, not necessarily the actual range of the insect.

From larvae collected in October-November 1973, seven adults (five from Portland and two from Benfleet) emerged between the 28th of June and the 8th of July. Mr. Scarsdale Brown tells me he bred about 15 specimens from Dorset. The imagines correspond well with the description I made from French examples in the British Museum (Natural History) (*loc. cit.*), except that the head is not fuscous as I stated, but ranges from ferruginous to fuscous, most having the centre of the crown fuscous and the frons and sides ferruginous. — A. M. EMMET, Labrey Cottage, Victoria Gardens, Saffron Walden, Essex, 2.xii.1974.

ESSEX INSECTS IN 1974. — On 21st July I caught a rather small female *Mythimna unipuncta* Haw. in my m.v. trap in the garden. It is perfect though not quite fresh. As I have bred *unipuncta* from Tresco and Portland and as, so far as I can trace, it is the only Essex record except half a dozen by Mr. A. J. Dewick at Bradwell, I killed and set it.

Immigrants have been rare here this year, although we had a large late brood of *Vanessa atalanta* L. I cut down all my buddleias at the beginning of October but on 5th October there were five *atalanta* in the front garden, four sitting on roses and one on the wall of the house. I regret to say I have seen no *Nymphalis polychloros* L. this year. — H. C. HUGGINS, 65 Eastwood Boulevard, Westcliff-on-Sea, Essex.

EUPHIDRYAS AURINEA ROTT. — A SECOND BROOD SPECIMEN AND FURTHER NOTES ON A SURREY COLONY. — In a past issue of this magazine I wrote concerning a colony of *Euphydryas aurinia* Rott. near Guildford, Surrey (*Ent. Rec.*, **84**:289). At that time (1972), this colony appeared to have been destroyed by a heath fire, but the following year in August, during a rather hopeless inspection of the former habitat, I was surprised and delighted to see a large web of young larvae. In view of the precarious state of the colony I decided to keep a small proportion of these larvae in captivity, as an insurance policy against further mishap in the wild, and I took exactly 20 away.

These hibernated on potted Scabious in our garden during the winter of 1973/74. This was particularly favourable to hibernating larvae (*vide* comments by Major-General Lipscomb, *Ent. Rec.*, **86**:170), and all 20 came through the winter unscathed! As is usual with this species, they fed voraciously in early spring and pupated around the end of April and beginning of May.

Roughly equal numbers of both sexes emerged and seven pairings were achieved—two of these pairs remained *in cop.* for nearly 48 hours.

I chose a sunny warm afternoon on 11th June to take these fertile female *aurinia* back to their original locality, but though I stayed at the site over an hour failed to see a single wild specimen. Indeed there was a critical paucity of Scabious,

most of which seemed to have been eaten to the ground by unidentified coleopterous larvae; so I took my *aurinia* females home again where they subsequently deposited over 800 ova. Most of the resulting larvae are at present hibernating in their thick winter webs, and as I have learned that the food-plant appears to be flourishing once again at the Guildford site, I hope to release them there next year.

One of these larvae, however, instead of hibernating matured rapidly (under virtually natural conditions and in spite of unfavourable weather) and pupated on 10th September. A male butterfly, somewhat duskier than typical examples from the locality, finally emerged on 1st October. During the last few days of September, after the pupa had darkened, ground frost became prevalent, so I brought the sleeved pupa inside at night. This was the only interference on my part. I have not heard before of *aurinia* producing a second emergence under these conditions. — Dr. C. J. LUCKENS, 52 Thorold Road, Bitterne Park, Southampton, SO2 4JG.

A NEW LOCALITY FOR *PHYLLONORYCTER NIGRESCENTELLA* LOGAN IN KENT. — On Sunday, 14th July, 1974 my family and I accompanied John and Jean Roche on a brief trip to the Darent valley, perhaps the only known locality in Kent for *Phyllonorycter nigrescentella*. We soon located the mines of this species in the lower leaves of Bush Vetch (*Vicia sepium*). By this late date, however, many of the second generation of adults were evidently already out and many empty pupa cases were projecting from the mines. A number of apparently tenanted mines was collected and I was delighted to be able to breed a fine series of this very attractive moth.

Since the foodplant is so common and the above mentioned habitat nothing out of the ordinary I made a note to search my own area of Sittingbourne for the moth. A brief search was duly carried out in the late autumn of 1974 and in two out of the three areas looked at, the unmistakable mines were easily found. These were in tetrad TQ 85Z. However, I feel sure I haven't just stumbled on a local colony and I believe the moth is just overlooked in Kent. It would benefit others interested in this group to make a determined search for the mines in their own areas. The mines are usually on the lower leaves of plants growing in ditches or in hedgerows; places where a degree of shade from higher foliage is given. Often several adjacent leaflets are mined, and very often the mines are buried deep in the grass. — Dr. I. A. WATKINSON, 166 Sterling Road, Sittingbourne, Kent.

NYMPHALIS POLYCHLOROS L. (LARGE TORTOISHELL) IN SUSSEX IN 1974. — At 5.45 p.m. on 6th July this year at least two specimens of *Nymphalis polychloros* L. were seen by my family and myself while we were walking in an area of heath and light woodland in Sussex. My mother, who was some 100

yards ahead with my younger son, first noticed two large, tawny butterflies flying round a small tree. One of these flew into some surrounding oaks, but the other fluttered down to a patch of bare ground, and sat basking with spread wings. Both my parents are reliable lepidopterists, so when I heard my father relaying the information that they could see a large Tortoiseshell, I covered those intervening 100 yards at a speed that would have been the envy of any Olympic sprinter!

When I arrived the butterfly had moved to the trunk of a small tree, and indeed proved to be a superb female *polychloros*. Her wingspread must have measured a good $2\frac{1}{2}$ inches, and the late afternoon sun caught all the russet-gold hairiness of abdomen and inner wing margin. The six of us reverently admired her while she displayed there, until she eventually flew down to the bare earth again for a minute, then round in a wide circle to join her fellow in the oaks.

After a wait of about 20 minutes I actually heard the next *polychloros* before I saw it as it flew past with an audible click of wings. This time it circled without settling, and then "struck" a large cherry tree at full speed.

My parents were able to visit the locality regularly over the next few weeks, and in fact the following day saw another, rather more tattered specimen sunning on a post at about 12.10 p.m. In spite of fairly close observation, both by my parents and myself, no further Large Tortoiseshells have been seen for certain to date; though on 20th July my father thought he saw one fly up from a path in the same area, and on 23rd July my mother also records a probable but unconfirmed sighting.

I hope these butterflies may prove to be the nucleus of a thriving colony in this very suitable area. I await next spring with considerable anticipation. — Dr. C. J. LUCKENS, 52 Thorold Road, Bitterne Park, Southampton, SO2 4JG.

SOME LATE DATES IN 1974. — In spite of a very lean autumn for lepidoptera in general there were quite a number of interesting late dates for species in the m.v. trap here as follows in chronological order, some being no doubt second broods: — 4th September, *Campaea margaritata* L.; 8th September, *Unca tripartita* Hufn.; 9th September, *Epione repandaria* Hufn.; 13th September, *Mamestra brassicae* L.; 14th September, *Cryphia perla* D. & Schiff., and *Euproctis similis* Fuessl.; 16th September, *Crocallis elinguaris* L.; 17th September, *Cleora rhomboidaria* D. & Schiff.; 19th September, *Sterrhia aversata* L.; 26th September, *Amphipyra tragopogonis* Clerck; 15th October, *Hypena proboscidalis* L.; 18th October, *Euschesis comes* Hübn.; 6th November, *Dysstroma truncata* Hufn.; 8th November, *Plusia gamma* L.; 21st November, *Thera variata* D. & Schiff. — C. G. M. DE WORMS, Three Oaks, Shore's Road, Woking.

HADENA COMPTA D. & S. AT WOKING. — On the evening of 1st August, 1974, I found a somewhat worn female of the Varied Coronet in my m.v. trap here, apparently the first record for this part of Surrey. Ever since its appearance in East Kent in 1948 this insect has been spreading through the eastern counties wherever sweet williams are grown, but it has apparently not extended its range westwards of Bucks., though it is now quite prevalent throughout the London area. Its occurrence here is therefore not altogether a surprise. — C. G. M. DE WORMS, Three Oaks, Shore's Road, Woking, Surrey.

HYDROVATUS CLYPEALIS SHP. IN SUSSEX. — I was pleased to take a series of this small Dytiscid beetle in a drainage ditch near Camber Castle, between Rye and Winchelsea in East Sussex, on 3rd October, 1973. It was present there in numbers clinging to a filamentous species of alga. This locality appears to be further east than the usual haunts of the species, although Mr. E. Philp of Maidstone tells me that he has come across the odd example in this area on previous occasions. — JOHN PARRY, 38 Heather Drive, St. Michaels, Tenterden, Kent. [*H. clypealis* was first taken in East Sussex in 1937 by F. Balfour-Browne, but I do not know the locality; there are also single records for West Sussex (Chichester), West Kent (Higham) and East Kent (Romney area). South Hants. and Dorset may be regarded as its British headquarters. — A.A.A.]

CATHARTUS (AHASVERUS) ADVENA WALTJ FROM HAYSTACK REFUSE IN KENT. — Last winter I took a quantity of sieved refuse from an open barn housing baled hay and straw for examination at home, keeping the hay and straw samples separate. The barn is located at Newenden, near Tenterden, Kent.

Both hay and straw samples contained large numbers of the beetle *Cathartus (Ahasverus) advena* Waltj together with very many commoner species such as *Mycetaea hirta* Marsham, *Cryptophagus affinis* Sturm, *C. scutellatus* Newman, *C. punctipennis* Brisout and *Aglenus brunneus* Gyllenhal. A few *Clambus pubescens* Redtenbacher were also present.

The straw samples contained smaller numbers (about 16 in all) of *Carcinops 14-striata* Steph., presumably from the droppings of rodents. — JOHN PARRY, 38 Heather Drive, St. Michaels, Tenterden, Kent, 27.xi.1974. [From the later 1930's onward, *Ahasverus advena*, up to then extremely rare in outdoor situations, has been reported from a number of places in fermenting substances in the open, e.g. in profusion in a haystack in Windsor Park. — *Cryptophagus punctipennis* has for some time been reduced to a synonym of the very common and variable *C. philosus*. — *Carcinops 14-striata* has, I think, no special attachment to rodent or other dung, being usually found in well-rotted grass cuttings, compost, or other decaying vegetable matter. — A.A.A.]

ERANNIS LEUCOPHAEARIA D. & SCHIFF. IN DECEMBER. — I got quite a surprise in the morning of 30th December, 1974 to find a very black Spring Usher sitting on a window here, as I had never known this moth out before January, but perhaps it is not so remarkable considering the very mild spell during the last ten days of the year which has brought out the vegetation weeks ahead of its normal appearance. — C. G. M. DE WORMS, Three Oaks, Shore's Road, Woking.

ORTHOSIA STABILIS L. IN EARLY JANUARY 1975. — I had a surprise this morning, 3rd January, to find a Common Quaker in my m.v. trap, an abnormally early date for this spring species which I have only known twice before at this period of the year. — C. G. M. DE WORMS, Three Oaks, Shore's Road, Woking.

MELIANA FLAMMEA CURTIS (FLAME WAINSCOT) IN SUSSEX. — I took a male of this species at m.v. light here on 12th June, 1974 which Dr. J. V. Banner kindly identified for me. There are relatively few records of this moth outside East Anglia and the fens and I would be interested to hear of any other Sussex records or is this the first record of its occurrence in the county? It has been suggested that the specimen may have been an immigrant. However, as about $1\frac{1}{2}$ miles from the site of its capture there commence many acres of reed beds lining the numerous interlocked waterways at the mouth of the Ouse, could not this specimen have been one of a colony possibly started by immigration? It would be interesting to know if the native *flammea* differs in appearance from continental specimens. — COLIN PRATT, 5 View Road, Peacehaven, Newhaven, Sussex. [We only know of one other Sussex occurrence. In 1964, G. Haggett (*Ent. Rec.*, **76**: 193) noted a *flammea* at light at Arundel on 17th May, which may well have been an immigrant as two others appeared at light in widely separated localities in Kent on 24th May the same year and the only captures of this species in Kent for more than a century. — Editor.]

APOCHEIMA PILOSARIA D. & S. IN EARLY DECEMBER. — Single examples came into my trap here on the nights of 1st and 3rd December, when minimum temperatures were around 50°F.: a curious sequel to a very cold October and poor November, I have seen this moth in December occasionally before, but never much before Christmas. — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Surrey.

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EXCHANGES AND WANTS

For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Back numbers.—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

The Maidstone Museum have recently set up a Kent Biological Archives and Record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onward. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr. E. Philp at the Maidstone Museum, St. Faith's Street, Maidstone, Kent.

Wanted. — Samples of *Apamea monoglypha* (Dark Arches) from MV traps, to aid an investigation into the frequency of melanism in this species. We would like to obtain random samples, caught during the 1974 season, from any locality in the British Isles. If you think you might be able to help and would like further details please write to — J. Muggleton, Dept. of Zoology, University of Manchester, Manchester M13 9PL.

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Wanted. — Labelled British specimens of *Carterocephalus palaemon*, *Colias hyale*, *C. australis*, *Anthocharis cardamines*, *Lycaena dispar*, *Maculinea arion* and *Erebia epiphron*. Neede to complete collection of British Butterflies for Plymouth Athenaeum. Available in exchange west country bred specimens of *Polygonia c-album*, *Colias croceus*, *Euphydryas aurinia* and *Mellicta athalia*.—P. Jeffery, 1 Badminton Cross, Harrow, Middlesex. Tel. 01-863 3686.

Change of address. — B. R. Baker, Esq. to 25 Matlock Road, Caversham, Reading, Berks.

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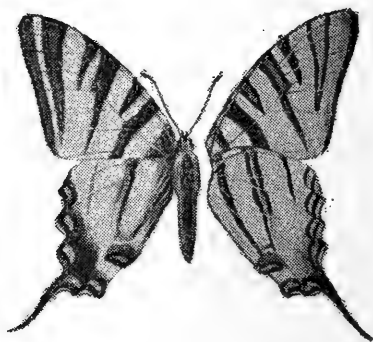
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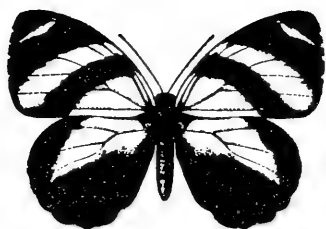
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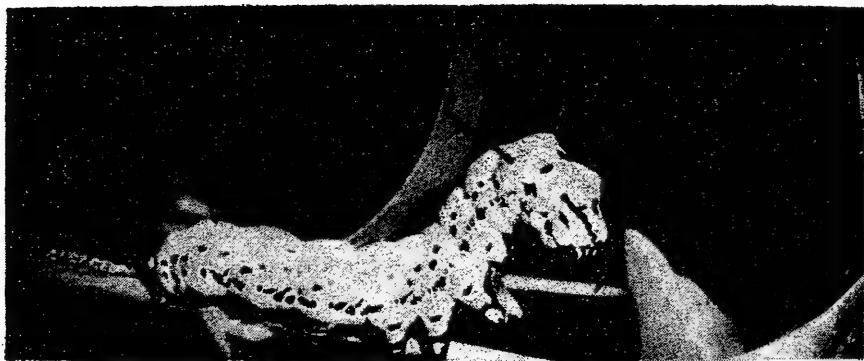
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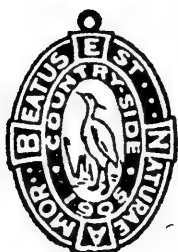
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Plate I



Precis octavia Cramer

Top left: ab. **langata** Holotype ♂ Upperside. Top right: typical form *natalensis* ♂ Underside.
 Bottom left: ab. **falke** Allotype ♀ Upperside. Bottom right: ab. **falke** Allotype ♀ Underside
 Figures approximately x1 natural size.

Three Aberrations of *Precis octavia* Cramer (Lep.: Nymphalidae) from East Africa

By L. McLEOD

25 Sleaford Close, Balsham, Cambridgeshire, England

Since 1964 the writer has carried out investigations of the environmental variation in many of the African species of the butterfly genus *Precis*. This genus is remarkable for the variation of wing shape, and pigmentation shown by some of its members.

The investigations have especially focussed on two species, namely *P. octavia* Cramer and *P. archesia* Cramer. Both of these species exhibit extreme seasonal variation.

During the course of these studies many hundreds of insects have been raised under laboratory conditions.

Although the variation of pigmentation and wing pattern in *P. octavia* is probably the most extreme example in the Lepidoptera, this variation follows a set pattern (McLeod 1968). Any deviation from the normal range of variation can at once be seen.

The investigations still continue and quantities of living insect material are frequently received by air mail from several regions of Africa.

In 1972 a quantity of living *P. octavia* butterflies was received from Uganda. Amongst them was a very unusual aberration. This butterfly died soon after arrival, the possibility of breeding from it thus being lost.

This butterfly is described below together with a new but less striking aberration which appeared in breeding stock during 1966.

The third aberration was briefly mentioned in print some 52 years ago (Poulton 1923) following its exhibition at the Royal Entomological Society of London. While writing on this specialised topic I take the opportunity of naming this "important" aberration.

Precis octavia sesamus ab. **falke** ab. nov.

Allotype ♀: Collected at 6,500 ft. near Sipi on Mt. Elgon, Uganda by Rev. H. Falke, 9th December, 1972. The insect was flying with many other normal *P. octavia* f. *natalensis* Staudinger. Two f. *sesamus* Trimen were also seen. Eight *octavia*, including this aberration, were sent alive by air mail to the writer. The specimen was exhibited at the Royal Entomological Society of London on 21st February, 1973, and at the Annual Exhibition of the British Entomological and Natural History Society on 2nd November, 1974. In the McLeod collection.

This aberration varies from the typical form *natalensis* in that the black marginal band of the outer border is wider and extends inwards towards the wing base. This is most extreme on the hindwing, both upperside and underside, where the black marginal band actually joins the row of post-discal spots. On the forewing this only occurs in cellule 1b.

The two rows of white lunules enclosed by the black

marginal band are also greatly enlarged, especially the proximal row which are wedge-shaped.

On the underside the black area at the wing base of the hindwing is extended and completely obliterates the four cream/pink circular areas normally enclosed by it.

The black bar which traverses the distal end of the cell of the forewing joins on to the black area which runs from the wing base along the inner margin. This character may or may not be typical of *ab. falke*. It is also seen in *f. transiens* Wichgraf but *ab. falke* is somewhat different in lacking the dark brown areas which occur distal to this black bar.

Precis octavia sesamus *ab. langata* *ab. nov.*

Holotype ♂: Bred by the writer ex-Karen, Nairobi, Kenya, December 1966, together with many other *f. natalensis*. In the McLeod collection.

This aberration differs from the typical *f. natalensis* in that the post-discal spots in cellules 5 and 6 of the hindwing join together to form a very short bar. This character is seen equally on both upperside and underside. It appears to result from the termination midway along its length of vein 6.

Precis octavia sesamus *ab. albonotatus* *ab. nov.*

Holotype ♂: Collected at 6,000 ft. near Karen, Nairobi, Kenya, by Dr. V. G. L. van Someren in June 1919. The specimen was presented to Prof. E. B. Poulton and exhibited at the Royal Entomological Society of London on 12th October, 1923 (Poulton 1923). In the collection of the Hope Department of Entomology, University of Oxford.

As in form *sesamus* Trimen, except that the circular areas distal to the post-discal spots of both fore and hindwings are white instead of red. The specimen is rather badly damaged on both hindwings.

Although recorded in the southern race, *ab. albonotatus* is undoubtedly a result of the same genotype which produced the albinism of *ab. kualii* Heslop (Heslop 1959). *Ab. kualii* has been recorded from the north-western race (Heslop 1956). It was collected at New Kwale, Nigeria on 31st August, 1941 and is characterised by the orange/red pigment of *f. octavia* being replaced by white. This specimen is now in the City Museum, Bristol. This example of a single aberrant character appearing in the two extreme seasonal forms of a species is perhaps unique and worthy of note.

A rare aberration of *f. natalensis* in which white patches occur on the hindwings was reported from Rhodesia (Pinhey 1949). Dr. Pinhey later stated that he was unaware of the whereabouts of this specimen and that it was not in the collections of the National Museum, Bulawayo or the Department of Agriculture, Salisbury (Pinhey 1970). The writer has examined many collections in east and southern Africa and in November 1974 located a specimen in the Transvaal Museum, Pretoria, Pretoria, South Africa, which may be the one mentioned by Pinhey. However, in the writer's opinion it is not a genetical

Plate II

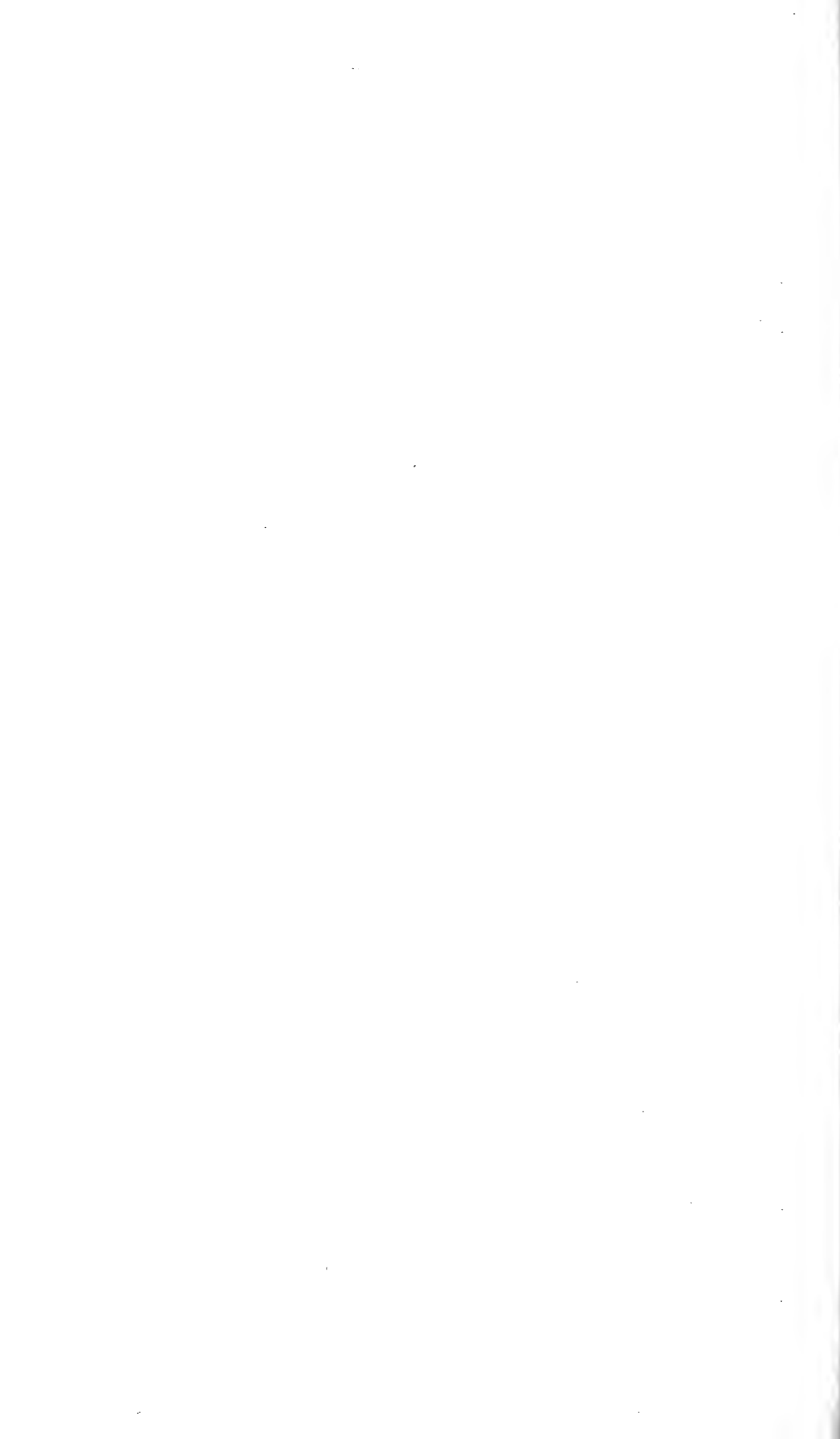


Precis octavia Cramer

Top: ab. **falke**. Living specimen at rest.

Bottom: typical f. *natalensis* collected at the same locality on the same date.

Figures approximately $\times 1\frac{1}{2}$ natural size.



aberration but is the result of some physical interference or imperfection at the time of pigment deposition. The same lack of pigment in small areas of wing is frequently seen in the Argynnidae.

Acknowledgements

The writer is grateful to Mr. P. F. Bird of the City Museum, Bristol for colour transparencies of ab. *kuali* and also to Mr. E. Taylor, Hope Department, University Museum, Oxford for colour transparencies of ab. *albonotatus*.

The writer is indebted to Rev. H. Falke, Kisubi, Uganda, the late Mr. R. W. Wells and Mr. T. Schofield of Natal, South Africa, and Mr. J. A. Whellan of Limbe, Malawi, for supplies of living *P. octavia* insects.

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A Visit to Skomer

By P. M. HEATH

Churchill Hall, Stoke Park Road, Bristol

My sister and I intended to visit this small island off the coast of Pembrokeshire during 1st to the 6th of September, 1973. I had no idea what the lepidoptera would be like, but took a portable blacklight with me.

As it turned out, the 1st of September was a terrible day with lashing rain and howling winds and we were unable to cross to the island. We found a place to stay at St. Martin's Haven and I ran my trap on the cliffs. There was nothing interesting to record but I list the species taken since the traps we ran later on Skomer, only a short distance away, yielded completely different results. The moths recorded were *Luperina testacea* D. & S., *Diarsia rubi* View., *Gortyna micacea* Esp., *Pseudoterpna pruinata* Hufn., *Malacosoma neustria* L. and *Noctua pronuba* L. On the bracken surrounding the trap were several *Ceramica pisi* L. larvae.

The 2nd of September proved to be a glorious day, the wind having dropped and the skies cleared. While waiting for the boat to take us to the island, I saw my first *Vanessa cardui* L. for three years. The moment we landed on Skomer, *Eumenis semele* L. was observed and proved to be very common, but only at this one rock locality; on the other hand, *Pararge megera* L. was common both here and throughout the island. While walking to the chalets in the centre of the island, we saw *Lycaena*

phlaeas L., *Aglais urticae* L. and *Vanessa atalanta* L. Once again, the striking *C. pisi* larvae were numerous on the bracken and brambles.

In the afternoon, a heavy fog set in and the fog-horn started. This was the weather and sound we were going to become very familiar with during our stay. Even though the weather was so bad, I decided to put the trap out that evening. I chose a sheltered spot a quarter of a mile along the path leading to the Garland Stone. The vegetation was mixed, consisting of heather, bracken and bramble. Despite my placing it behind a wall, the wind was so gusty I had to weigh the sheet down with rocks. On the way back from setting the trap, I found the path was swarming with toads and frogs. There were so many it was impossible not to step on them. There were also numerous young shearwaters. These birds were still totally unable to fly and would rush off at your approach and dive noisily into the bracken. At one spot we were repeatedly "attacked" by a short-eared owl: no evening walk on the island was dull!

I was pleasantly surprised in the morning to find I had quite a large catch. Among the 21 species taken, *Paradiarsia glareosa* Esp. was the commonest and there were several *Gortyna flavago* D. & S., *Amathes agathina* Dup., *Antitype xanthomista* Hübn. and *Arenostola pygmina* Haw., together with a single *Euxoa obelisca* D. & S.—quite a promising start. The weather proved similar to that of the previous day, a good morning with fog coming down in the afternoon. *Maniola jurtina* L. and *Coenonympha pamphilus* L. were the only additional butterflies, both being common throughout the island. A single *Euphyia bilineata* L. was beaten from some bramble and we saw larvae of *Diataraxia oleracea* L. and *Cynia mendica* Clerck.

That evening I put my trap amongst some heather near a lake which had some reeds on the far side. As the weather was not too bad, I decided to stay for a while. I had not realised the implications of being almost on top of a great black-backed gull colony. These gulls made repeated close passes and in the dark on your own I can assure you it is a very frightening experience. When amidst a terrifying noise a gull landed on my head and then hopped on to the sheet, I decided to give up and returned to the chalet. The actual species I recorded in the morning were a bit disappointing but their numbers were surprising, for well over a hundred of both *P. glareosa* and *A. agathina* were present. It was interesting to find that the majority of both species were f. *rosea* Tutt; indeed, most species seemed to be brighter than those on the mainland. There were also a few additions to our previous records, the most interesting being *Eupithecia nanata* Hübn., *Hadena bicruris* Hufn., *Lygris testata* L., *Amphipyra tragopogonis* Clerck and *Rivula sericealis* Scop.; surprisingly for a light trap, *V. atalanta* was also present.

The 4th of September proved to be a nice warm day but,

although many butterflies were flying, nothing fresh of interest was seen. That night I decided to run the trap about three-quarters of a mile along the path leading to the Wick. I expected this to be a superb site and so it proved. The trap was placed in a small, sheltered valley, which was covered in a mass of heather, and close to a small dried-up pond. I wish I had stayed with the trap but the night was clear and I thought little of the chances of a good catch. Yet the fact that in the morning I found some 712 moths in the trap speaks for itself. There were well over 300 *A. agathina* and 200 *P. glareosa*, which for a small blacklight with a 6-watt actinic tube, is really incredible. There were some other nice species as well, including *Agrotis trux* Hübn., *Scopula conjugata* Borkh., *Cryphia muralis* Forst., *Heliothis armigera* Hübn., *Hadena rivularis* F. and *H. bicruris* Hufn. Like an idiot, I did not stay in this sheltered valley for my two remaining nights' trapping but moved to other sites I had previously chosen.

The following day was pretty miserable with fog materialising at regular intervals. The only highlight was when a very battered *Lyncometra ocellata* L. crawled out of my sleeping bag. That night I put the trap on a different path leading to the Wick. This was in a much exposed position with ferns as the main vegetation. Unfortunately I placed it in the middle of shearwater colony—with disastrous results as you will hear.

After setting the trap I decided for a change to walk round the island using a Tilley lamp and beating tray. At the Wick I paused to shine the light on a clump of ragwort and saw a fresh specimen of *Rhodometra sacraria* L. feeding on the flower head. Shortly after this I netted a second but a third eluded me as it flew over a precipitous cliff. The rest of the walk was uneventful save for the capture of a second *A. trux*. After a restorative drink at the chalet, I went to look at the blacklight and found it surrounded by 30 young shearwaters. As I was only too well aware of the damage they could inflict, I kept guard over the trap for about an hour, but when the Tilley lamp went out I decided to retreat for it had turned cold and the dew was falling heavily.

In the morning I hardly recognised the trap for it was on its side with the contents spread all over the ground. The sheet was a crumpled mess and saturated with dew. To cap it all, the battery had gone flat! Though few moths remained, there was one interesting addition in *Eumichtis lichenea* Hübn. Still, from the 700 odd specimens of the previous night to sink below 50 was rather a disappointment. Luckily the warden had just obtained a generator from the mainland and he was kind enough to unpack it so that my battery could be recharged.

The 5th of September proved unfruitful, though the weather was good; only *Polyommatus icarus* Rott. and *Nymphalis io* L. were added to the week's list. That night I put the trap in a sheltered spot near High Cliff. It was slightly boggy, a mixture of ferns and bramble being the predominant vegetation. As a last-ditch effort I stayed with the trap the whole night, and

pretty unrewarding it proved. I removed one clumsy shearwater who seemed determined to knock the trap over and a fat frog which was busy eating all the moths as they came along. *Xanthorhoe spadicearia* D. & S. was the only addition, but there was a welcome second *E. lichenea*. The most striking feature was the total absence of any *A. agathina* despite the fact that the area of heather where it had been so numerous was only half a mile away. So even on a very small island it would have been easy to overlook this insect. *P. glareosa* on the other hand was prevalent throughout the island and was not restricted to the heather areas. *E. obelisca* was usually numerous at all the traps, as were *A. xanthomista* and *G. flavago*, all these moths generally regarded as being scarce. The occurrence of *V. atalanta* in plenty, several *R. saccharia* and a single *H. armigera* indicated that it was a good migratory year.

We left on the 6th of September after a most enjoyable five days. The fondest memories I shall have will not be of the moths but the shearwaters—stupid and annoying but so very appealing and charming. There is still a lot to be found on the island. We recorded 48 species and I hope we shall have some further successes when we go again in 1974. The only records of the area prior to my visit were made by a past warden who listed 94 species; this has now been increased to 110. If anyone has any records of the area I should be very grateful to have them for in the near future it may be possible to publish a list of the island's macrolepidoptera.

Finally, I would like to thank John Davies, the warden, and Dr. Bray of the Nature Conservancy for permission to collect in the reserve and for all their help and advice.

Among the British Lepidoptera, 1973

By B. G. WITHERS, B.Sc.

“Onaway”, 18 Broadstone Road, Harpenden, Herts., AL5 1RG

(concluded from page 44)

the following morning. Several females of *M. rubi* were early arrivals and showed a remarkable range of size. *Lycophotia porphyrea* D. & S. was common and other noteworthy species included *Mythimna pudorina* D. & S., *Boarmia roboraria* D. & S., *H. impluviata*, *C. pustulata* and a very late *M. abruptaria*. Little collecting was done the following week as we were preparing for our Continental holiday beginning 30th June.

Our return on 12th July was marked by warm but stormy conditions and the garden trap was the only source of moths at this time, with one specimen of *Plemyria rubiginata* D. & S. on the 15th being the best of a poor bunch. An evening trip to the Chilterns on the 18th produced 50 species of macro in rather cool, damp conditions. *D. blomeri* was fairly common

with some very small specimens among their number, while *Abraxas sylvata* Scop. abounded as usual; singletons of *Acronicta leporina* L., *Apamea charactera* Hübn. and *Mesoleuca albicillata* L. were also taken. Weather conditions again deteriorated for several days and it was not until the 24th that I ran the m.v. on Nomansland Common where 65 species of macro were recorded in an hour and a half. *Cosmia pyralina* D. & S. was very common and mainly in mint condition while *Pseudoterpna pruinata* Hufn. was abundant. *Eilema complana* L. was also well to the fore and other species of note were *Ennomos erosaria* D. & S. (a female which laid freely), *Spaelotis ravidata* D. & S., *Euphyia unangulata* Haw., *P. transversata* and *Eupithecia succenturiata* L. Further evenings in the same locality on the 28th and 30th produced many of the species referred to above but nothing more of note.

Warm weather on the 31st prompted us to take a couple of days' leave and make a trip to Dorset, where, near Studland, we were forced to camp on the roadside amidst a plethora of caravans and dormobiles whose occupants had found, as we had, that pitches on campsites in this area at this time are at a premium to say the least! We operated the m.v. light at Shell Bay within earshot of the ferry and moths soon arrived in numbers. Prominent among these were *Mythimna litoralis* Curt. which was fairly plentiful and a few *M. straminea* Treits. Perhaps the best of 35 species was a single example of *Scopula emutaria* Hübn. The Pyrale *Anerastia lotella* Hübn. also put in a welcome appearance. The following morning, 1st August, we dismantled the tent from the roadside and drove to Portland where butterflies, particularly *Lysandra coridon* Poda., were exceptionally abundant, and some good vars. of this species were taken in the evening by inspecting the resting thousands on the grass stems. One male var. *fowleri* and several var. *basijuncta* were among these, also one male with exceptionally large underside spots. I do not possess a copy of Bright and Leeds, so am at a loss to know what to call it. The memory of this brilliant day with the banks seething with *coridon* will long remain to cheer these dull winter days.

That night we operated the portable m.v. near Church Ope Cove having pitched the tent on the cliff top in a stiff breeze. Two fellow entomologists, who had also been hunting *coridon* vars. bedded down alongside us. The light was first of all run with a sheet and produced hosts of moths, *Noctua pronuba* L. being in such numbers that they almost smothered the sheet and numerous individuals ascended the trouser legs of the onlookers giving rise to unexpected and unseemly war dances. However, among these vulgar plebs were more select species such as *Cryphia muralis* Forst. (five specimens), *Gnophos obscuratus* D. & S., *Perizoma bifaciata* Haw. and two late *Idaea degeneraria* Hübn. A number of Pyrales was also noted, including fine fresh specimens of *Pyrausta cingulata* L. and *Oncocera semirubella* Scop. and several *Mecyna asinalis* Hübn. At midnight the generator was refilled and the m.v. light

attached to a Robinson trap and left overnight. The following morning the trap contained about a thousand moths, of which *N. pronuba* constituted about 90 per cent. Among this gathering we found single specimens of *S. degeneraria* and *Agrotis trux* Hübn. During the late morning and early afternoon, we examined a large stand of reed mace at Lodmoor, and found pupae of *Nonagria typhae* Thunb. there in plenty which produced some fine moths a week or so later. With weather conditions showing signs of deteriorating we drove the 120 miles to my parents' home at Chipping Norton where we stayed overnight and operated a static Robinson trap there in the garden. Single specimens of *S. ravida* and *Rhyacia simulans* Hufn. were the most noteworthy insects in a good-sized catch which again comprised a large percentage of *N. pronuba*. We returned to Harpenden early in the morning of 3rd August.

Owing to indifferent weather, little of interest appeared at the garden trap and on two trips made to Nomansland Common. The beginning of a heatwave on the 19th inspired us to travel to Suffolk where a total of 66 species of macro came to our favoured spot near Lakenheath. One of the first to arrive was a very fine specimen of *Scopula rubiginata* Hufn. and another equally fresh specimen of this species appeared much later in the evening. *Arenostola phragmitidis* Hübn. was plentiful as was *Semiothisa clathrata* L. and a worn melanic specimen of the latter was taken. *Phragmatobia fuliginosa* L. was also surprisingly common and other items of interest were several each of *Harpyia furcula* Clerck and *Agrotis vestigialis* Hufn. and a single specimen of *Photedes fluxa* Hübn. The early part of the morning of the 11th was occupied with setting the previous night's prizes and later we drove on to Walberswick pitching camp on the dunes by the sea amongst a horde of other campers. Toadflax was growing in abundance nearby and a handful of this plant eventually produced about two dozen pupae of *Eupithecia linariata* D. & S. Portable m.v. operated in the middle of a nearby reed-bed produced a host of moths of 42 species, including *Photedes brevilinea* Fenn. in abundance along with considerable numbers of *Archanara dissoluta* Treits., *A. neurica* Hübn. and *S. albovenosa*. A single specimen of *Euxoa cursoria* Hufn. was also taken, evidently a stray from the nearby sandhills. Despite a stiff onshore breeze, an actinic trap left outside the tent all night produced four each of *Apamea oblonga* Haw., and *E. cursoria*, also *S. ravida*, *L. suasa*, *P. brevilinea* and a single specimen of the local Crambid *Agriphila latistria* Haw.

The heatwave continued and I decided to go to Chipping Norton to try for further *R. simulans*, and arrived there on the evening of the 13th having dropped my wife off at Harpenden. A further specimen of *simulans* was taken at m.v. light that night and during the day I found yet another at rest between wooden planks in a barn on a friend's farm. A trip to Charlecote near Warwick was rather disappointing, largely due, I think, to a full moon. Three *Cosmia affinis* L. were noted, but no *Cosmia*

diffinis L. for which this area is renowned. I understand it was taken in numbers at sugar a day or so later—perhaps this method would have been a better bet, but I was not carrying any “sugar” on this occasion. The commonest moth to m.v. was the tiny pyrale *Acentria nivea* Olivier which swarmed, and the only other “macro” of interest was a male *Orgyia antiqua* L. which arrived at the light at almost 11 p.m. I returned to Chipping Norton to find another *R. simulans* awaiting me in the static trap set in my parents’ garden.

The next two days were very hot and being mainly occupied with social events, it was not until the 16th that I was able to visit Nomansland again; on this occasion 60 species of macro arrived at m.v. light within two hours. Among these were *C. affinis*, *Amphipoea oculatea* L., *Ipimorpha subtusa* D. & S., *S. ravidata*, *Scoliopteryx libatrix* L. and several *Eupithecia icterata* Vill. *P. pruinata* was still in evidence but by now well past its prime. The heatwave gave way to much cooler conditions the following day and it was in rather chilly and very clear weather that we ran our light in Nottinghamshire, among birches on the Edwinstone-Ollerton Road. Our main quarry, *Enargia paleacea* Esp. failed to put in an appearance but a few fine specimens of *Diarsia dahlia* Hübn. were a welcome consolation prize. Three specimens of *Xanthia icteritia* Hufn. also arrived (this seems very early for us southerners, but I understand the species appears earlier in more northern parts), including one of the form *flavescens*. In all only 25 species were recorded by 11 p.m. and so we packed up and made the return journey down the M1 that night.

On the afternoon of the 18th we made a quick trip to Surrey and, having pitched camp near Box Hill and arranged for a plug-in for the Robinson trap, hied to White Downs where both portable m.v. light and an actinic tube were operated. The cooler weather in the north had not yet reached the south-east and so this warm and rather hazy night saw 52 species of macro at the two lights. *Horisme vitalbata* D. & S. was fairly common and several *D. cultraria* were also noted. Other species of note included *Aplocera efformata* Guen., *S. ornata*, *Amphipyra pyramidea* L. and *Eilema deplana* Esp. A single specimen of *Dioryctria abietella* D. & S. at the actinic tube made a welcome addition to my growing collection of Pyralidae. The trap at the farm where we camped produced little of interest apart from a spate of rather worn *H. vitalbata*. However, one female of this species obliged with ova and I succeeded in breeding a small batch of pupae which await emergence in the spring. After a brief unsettled spell, fine, warm conditions returned in time for the Bank Holiday weekend, and on the 24th we travelled to Dorset, breaking our journey in the New Forest where two specimens of *Scopula marginepunctata* Goeze. were taken from the walls of the camp buildings at Hollands Wood. We called in on Donald Russwurm at Brockenhurst and were amazed at the number of butterflies on the *Buddleia* bushes in his garden. *A. urticae* predominated,

with *I. io* a close second, and the occasional *Vanessa atalanta* L. Driving on to Dorset we found similar swarms of butterflies at Hemp Agrimony on the heathland between Stoborough and Arne, and an abundance of *Pararge aegeria* L. in the shadier spots. That night we again ran the m.v. at Shell Bay where we were surprised to see *M. litoralis* still flying, and other interesting species included *A. vestigialis*, *Archanara sparganii* Esp. (two males), *Plusia festucae* L. (three specimens) and *Orthonama vittata* Borkh. A Robinson trap with an actinic tube attached left on the heathland where we had pitched camp produced a number of *Eulithis testata* L. and little else of interest. During the daytime on the 25th, we drove out to Portland where we found a few *L. coridon* still flying, including a female virtually devoid of underside spots and a very worn var. *fowleri* of the same sex. *Lycaena phlaeas* L. and *Hipparchia semele* L. were also fairly common but rather worn. Later, at Lodmoor, we again investigated the reed mace bed but found that almost all the *N. typhae* had emerged. I was somewhat horrified to see a notice nearby announcing that this area is scheduled for development. I hope that the local Naturalists' Trust members are maintaining a vigil over such matters as these, or maybe they are too busy policing their ill-managed hilltop "reserve" and devoting their funds to the prosecution of any innocent who inadvertently strays on to it. I sincerely trust that the latter is not the case.

We returned to Shell Bay in the evening to operate the m.v. on one side of the road leading to the ferry and an actinic trap on the other side. The evening was warmer than the previous one with a slight breeze preventing any early mist from forming. It turned out an excellent one for moths, with 44 species, including three specimens of *Ochropleura praecox* L., a species I particularly wanted. Also of interest were *P. festucae* (two), *N. typhae* (two large females), *Coenobia rufa* Haw. (one), *A. sparganii* (one female), *P. hippocastanaria* and a female of the scarce Geometer *Cyclophora pendularia* Clerck which laid frugally; four healthy pupae eventually resulted. The Pyrales were well represented by *Chilo phragmitella* Hübner, *Calamotropha paludella* Hföbner, and *A. latistria*. Later in the evening we were visited by the warden of the nearby nature reserve and his assistant to whom I subsequently supplied a list of species taken in this locality in 1973. On the 26th, butterflies were abundant all over the Purbeck area in glorious, warm sunshine. *Lysandra bellargus* Rott. made a good showing near Corfe Castle and several *Thymelicus acteon* Rott. were also observed in the same area. *A. urticae* was especially abundant on Hemp Agrimony around Wareham, along with numerous *I. io* and *V. atalanta* and *H. semele* and *Pyronia tithonus* L. were in some numbers, but mostly very worn. The evening was less promising with a cool mist, but light on the edge of an Army Range between Wool and Stoborough produced 40 species of macro. About the first insect to arrive was an exceptionally large female of *Hepialus sylvina* L. and the

golden shower of *Ennomos alniaria* L. put in its usual appearance. *Lymantria monacha* L., *Hoplodrina ambigua* D. & S. and *Tholera cespitis* D. & S. were the only other species worthy of note. Early the following morning we began our journey home, stopping at Hollands Wood where a female *Stilbia anomala* Haw. was found on the toilet block walls.

An unsettled and cooler spell followed, and it was not until 2nd September that I ventured forth again to Nomansland Common. On this occasion 20 species of macro were recorded in two hours including a second brood example of *E. linariata* and the first local specimen of *X. icteritia*. On the 3rd Ashridge was my venue when I noted 23 species. *Chloroclysta citrata* L. was quite common but worn and two females of *E. alniaria* graced the sheet fairly early on. Later two melanic specimens of *Thera obeliscata* Hübn. arrived and these were soon followed by singletons of *Paradiarsia glareosa* Esp., *X. icteritia* and *Amphipyra berbera* Rungs. With the weather becoming even warmer I drove to Chipping Norton where I spent most of the day working on my car which needed attention. In the evening however I found time to run the portable m.v. for an hour or so two miles from the town, near the village of Cornwell. A female *E. alniaria* again showed up early, soon followed by *Epione repandaria* Hufn. Three specimens of *Atethmia centrargo* Haw. and a single specimen of *I. subtusa* were also notable among a total of 22 species.

The warm weather persisted, and on the 6th two specimens of *Xanthia citrargo* L. were taken in a Robinson trap which I had established at Rothamsted Manor with the main purpose of capturing female craneflies for culture purposes. Three further specimens of this moth turned up subsequently during the month and I have resolved to beat the neighbouring lime trees in the spring, now that I know for certain that this species is relatively common in the area. Portable m.v. at Symondshyde Great Wood on the evening of the 6th attracted 26 species including two more *E. linariata* and one *Photedes pygmina* Haw. The Manor trap produced a further *X. citrargo* and two very fine *A. centrargo* on the 7th and in the afternoon we set out for the New Forest for the weekend. On arriving at Hollands Wood where we pitched camp we found the toilet block walls and windows a veritable El Dorado. The first moth I picked up was *Xestia castanea* Esp. and later, on the same building, specimens of *Eupithecia phoeniceata* Ramb. and *Rhodometra sacraria* L. The second block produced a fine *Chloroclysta siterata* Hufn. That evening we operated the portable m.v. light near Rhinefield enclosure and placed an actinic trap on the edge of nearby heathland. The evening was very warm although clear and with the moon approaching full. Thirty-seven species of macro were recorded, notable among these being several each of *X. castanea*, *Xestia agathina* Dup. and *P. glareosa*, two of the last mentioned being exceptionally pink in colour. Later another *C. siterata* arrived followed by two *P. hippocastanaria* and several *Cymatophorima diluta* D. & S. One specimen of

Crambus hamella Thunb. was also taken. During the evening we were bothered by a number of hornets arriving on the sheet and a keeper who arrived to check our credentials informed us that hornets had been scarce this year—just our luck to be invaded!

The following morning I took a further *R. sacraria* from the window of a campsite building and the day turned out again very warm and sunny. Butterflies, particularly *V. atalanta* and *A. urticae*, were very common. Night-time operations at Hollands Wood were somewhat marred by bright moonlight; however 28 species of macro were recorded, including a further *C. siterata*, several *Cyclophora punctaria* L. and late specimens of *Noctua fimbriata* Schreber and *Lymantria monacha* L. The "ablutions blocks" produced three specimens of the immigrant pyrale *Udea ferrugalis* Hübn.

A weekend in Chipping Norton in mid-September produced very little of interest, despite warm weather. The most notable feature was the number of *V. atalanta* at ivy bloom in several localities, up to 20 being seen on one small clump. On our return to Hertfordshire I operated the portable m.v. lamp in the Symondshyde area. A stiff breeze kept numbers of species down, but quality more than made up for quantity, single specimens of *Dryobotodes eremita* F., *R. sacraria* and *Xanthia aurago* D. & S. being notable among only 14 species. Little of interest was taken in the next fortnight, apart from a couple of *Larentia clavaria* Haw. in the Robinson traps locally. The weather was rather unsettled and cold until the end of the month.

Rather warmer weather on 2nd October prompted me to drive down to Portland for an evening. A stop at St. Leonards, near Ringwood, produced a specimen of *Aporophyla nigra* Haw. at rest and I arrived in Weymouth in the late afternoon. A stiff sea breeze was blowing, and in the evening this picked up considerably so I was forced to find a sheltered spot to operate the lights. Most of the species I had come for put in an appearance, but in very small numbers. Three *Mythimna l-album* L. were early arrivals to the m.v. and later a couple of *Leucochlaena oditis* Hübn. arrived; another welcome visitor was a specimen of the very grey local form of *Polymixis flavicincta* D. & S. We operated the actinic light over a Robinson trap and in this way captured single specimens of *Aporophyla australis* Boisd. and *A. nigra*. Ivy bloom was disappointing with one *L. oditis* being the only thing of interest.

The final trip of any distance in 1973 was to Suffolk on 5th October where m.v. light a couple of miles from Tuddenham produced a good assemblage of macros of 21 species. *Chesias legatella* D. & S. occurred among broom bushes and later came readily to the light. *X. aurago* was common but becoming worn and a number of species I seldom see turned up during the course of the evening. These included *D. eremita* (five specimens), *Dichonia aprilina* L. (one), *Rhizedra lutosa* Hübn. (two) and *Thera firmata* Hübn. (one).

A Fortnight's Collecting in Greece July, 1974

By C. G. M. DE WORMS
Three Oaks, Shore Road, Woking, Surrey
and R. F. BRETHERTON
Folly Hill, Birtley Green, Bramley, Surrey

PART I: By C. G. M. DE WORMS

The butterflies of Greece never seem to fail in interest or attraction with something novel usually appearing on each visit. It was with the intention of finding out what was on the wing in some of the mountainous regions at a rather later date than we had been there before that we once more set out on the night of 7th July. It was my third venture to that delectable country and the seventh of Russell Bretherton. We reached Athens about midnight and put up at the Alpha Hotel which was to be our haven later on. On the morning of the 8th we were visited by Mr. John Coutsis who was delighted to see us for the first time since 1971 and was able to give us a lot of very helpful information. After picking up a very efficient little Volkswagen we set out once more for the Peloponnese. Our first stop was at the junction of the road to Delphi where around the colourful bushes of Chaste Tree (*Vitex agnus-castus* L.) was flying *Iphiclides podalirius* L. with a number of *Plebeius argus* L. Our next halt by the side of the autoroute near Megara provided a surprise with three examples, all females of the smallest European butterfly, *Freyeria trochylus* Freyer. This tiny Lycaenid was very hard to see in the tall grass. Nearer Corinth a halt among some fir trees bordering the main road produced some fresh female *Hipparchia fatua* Freyer, a very handsome insect. After a refreshing bathe in the Gulf of Corinth we began ascending the tortuous road to Kalavryta which had only been completed shortly before our 1971 visit there. We again stopped by some fir woods just below the Megaspeleion Monastery. In this spot was flying quite an assortment, mainly of Lycaenids of which the most noteworthy were *Agrodiaetus admetus* Esp. and its slightly smaller relative *A. ripartii* Freyer, usually distinguishable by the cream streak on the underside of the hindwings. We reached Kalavryta in the late afternoon and had a warm welcome at the hotel Maria, our haven again as it was three years earlier.

A very warm day dawned on 9th July when we decided to try some of the higher ground at 1,100m. beyond Megaspeleion. There was a small fairly open plateau where a galaxy of species was flying. By far the commonest was the Marbled White, *Melanargia larissa* Geyer. Next in abundance seemed to be *Chazara briseis* L. Among other Satyrids were an occasional *Hipparchia fagi* Scop., a single late male *Kirenia roxelana* Cramer, some uncatchable *Hipparchia statilinus* Hufn. settling on fir trunks, as well as a few *Pyronia cecilia* Vall., also *Brintesia circe* Fab., *Lasiommata megera* L. and what we took to be *Hipparchia aristaeus senthes* Fruhstorfer. Among the Nympha-

lines were *Polygonia c-album* L., *Argynnis paphia* L., *Fabriciana niobe* L., and *Limenitis reducta* Staud. The Skippers were represented mainly by a few *Ochlodes venatus faunus* Turati and *Syrictus proto* Ochs. The only *Lampides baeticus* L. recorded for the trip was seen on this terrain. In all we saw quite 30 species of butterflies during the morning in this rich area. On 10th July we made our first assault on the Mt. Chelmos massif area which had proved so fruitful in 1971. We followed the same route on the rough mountain road with some ten hairpins, leaving our car at about 1,400m. on the level track among the Greek firs and then ascending to the famous Cherkobus plateau by the winding path which took about an hour's hard walk. The weather was ideal and on searching a small grassy clearing we saw the first *Colias aurorina heldreichi* Staud, flying round its prickly *Astragalus* foodplant. When we reached the main plateau it was soon apparent that this fine insect was in abundance and in better condition than we had anticipated at this late date. In fact we estimated seeing some four hundred individuals with many males past their best chasing newly emerged females of which we saw several of the white form f. *fountaineae*. Other Pierids noted included some strikingly marked female *Pieris ergane* Geyer with heavy black blotches on the forewings, also many *Aporia crataegi* L. just out at this altitude of nearly 5,000 ft. Blues were well to the fore with *Plebeius pylaon sephirus* Frivaldsky in great plenty in both sexes with the smaller *P. argus* L. flying in numbers. Of other blues we only saw single specimens of *Aricia anteros* Freyer and of *Plebicula dorylas* Schiff. Of the seven species of Hesperidae seen in the area the chief prize was a *Spialia phlomidis* H.-S., always a rarity together with a few *S. orbifer* Hübn. *Pyrgus armoricanus* Oberthür and *Carcharodus orientalis* Reverdin were distinctly scarce with an occasional *Erynnis tages* L. and *Carcharodus alceae* Esp. The *F. niobe* seemed a smaller race at this altitude and a contrast to the large *Argynnis aglaia* L. which was abundant. There were also some very worn *Parnassius mnemosyne* L. still fluttering and of course many *Colias croceus* Fourc. with several f. *helice*.

The weather was so perfect that we decided to make a further assault on the mountain the following day, the 11th. On this morning in wending our tortuous way along the rugged road we halted several times at large clumps of a tall thistle with large blue flowers which were well patronised by many butterflies, in particular a stretch of some 50 yards not far from where we left the car for the final ascent. By far the most numerous species were *Melanargia larissa* Geyer and *Pseudochazara anthelea amalthea* Frivaldsky with both sexes in fine order. These were accompanied by an occasional *Argynnis pandora* Schiff. and *Gonepteryx farinosa* Zeller. There was a host of *Agrodiaetus ripartii* flitting among the grass with a few *A. admetus* and a sprinkling of *Meleageria daphnis* Schiff. On our way up to the plateau we disturbed single specimens of *Nymphalis antiopa* L. and *N. polychloros* L. Species which we

had not seen before on the plateau included *Melitaea cinxia* L., *Brenthis daphne* Schiff., *Melitaea didyma* Esp., *Heodes phlaeas* L. and *Lysandra bellargus* Rott.

The next day, the 12th, we took the early morning train to the small station at Zachlorou, the scene of our successful collecting in 1971, but most species were getting over at this lower level. However, we were pleased to see our first *Gonepteryx cleopatra* L., while several *Limenitis reducta* Staud. were sailing along the gorge. Among quite a lot of hairstreaks were a few *Nordmannia acaciae* Esp. There were a great many *Argynnis paphia* L. on the wing in this attractive spot together with a few *Leptidea sinapis* L., *Syrictus proto* Ochs., *Carcharodus alceae* Esp., and *Celastrina argiolus* L. Yet another day with a cloudless sky saw us make a third attempt on the Mt. Chelmos plateau on 13th July. One of the chief insects of interest was a single male of *Hyponephele lupinus* Costa flying among a good many *H. lycaon* Hübn. and *Satyrus ferula* Fab. *Colias aurorina* and *Plebeius pylaon* were as before in great plenty. On our return late that day to Kalavryta we had a call from John Coutsis to say that he had just been to Mt. Tymphristos on the edge of the Pindus range in Central Greece. It had proved so fruitful that he recommended us to turn our faces northwards which we decided to do. Our final day in this region was spent on 14th July motoring over the Aroania neck to the village of that name which was in sweltering heat. We happened to find a patch of the white ground elder so beloved by butterflies and in this instance it was smothered in Lycaenids, mostly Hairstreaks and nearly all *Strymonidia spini* Schiff., in not too good condition, also with a fair admixture of *N. ilicis* Esp. and *N. acaciae* Esp. and a couple of *Quercusia quercus* L., which is an elusive insect in Greece. Here we saw the first *Heodes tityrus* Poda and *H. alciphron* Rott. There was also a few *Carcharodus orientalis* in this rich spot.

We left Kalavryta early on 15th July and sped down to the coast where we had to wait a long time for the ferry at Aegion. We eventually embarked but did not reach the northern shore of the Gulf of Corinth till mid-afternoon, so we considered it inadvisable to push on further north and booked up at the excellent Galini Hotel at Itea. After a refreshing bathe we went up half way on the Delphi road to Hrissos, but saw nothing of note on the wing. Early on the 16th we set out to the north and our first halt was on the top of the Gravia Pass where *Lasiommata maera* L. and *L. megera* L. were flying. We then dropped down into the plain after going behind the famous Pass of Thermopylae and after passing through the large town of Lamia we turned directly westwards and travelled over the high pass on the Veluchi range with 22 hairpins on the eastern side. We had a brief halt among some fir trees where the best capture was a dark female of *Heodes alciphron* Rott. Lower down on the western side of the pass we saw the first *Melanargia galatea* L. in a very dark form as well as a very bright form of *Heodes virgaureae* L. We reached our destination, the fairly

large town of Karpenission in the late afternoon and put up at the local old Xenia which proved far from satisfactory. The morning of 17th July dawned extremely favourably when John Coutsis joined us from Athens at an early hour but before setting out for the heights of Mt. Tymphristos we moved to the Helvetia Hotel with much better amenities. Then we wended our way up some very steep bends on the mountain road till we reached a small plateau above the tree line at about 1,600m. with the massive peak of Mt. Tymphristos towering in front of us. Here our guide John Coutsis said was the richest region, though nearly always with a strong wind blowing as was on this occasion. On the lower fairly flat level we soon saw a good many *Colias aurorina* visiting the Astragalus and also what we dubbed the pincushion plant with its prickles and bright pink flowers. Here too we saw several f. *fountaineae*, the white females. As on Chelmos *P. pylaon* was quite numerous, but getting over. But as we ascended to the zone of shale, we came across the first *Erebia ottomana bureschi* Warren, the largest form of this very handsome species. They were fluttering over the steep slopes and difficult to waylay in the high wind. Further up there was another small plateau with a sheltered valley flanked by rocks which was a haven for many insects, especially *Boloria graeca* Staud. skimming swiftly low over the herbage at this near 1,800m. height. Among the rocks our companion took the first *Erebia melas* Herbst. We descended in the early afternoon and on the level near the road Russell Bretherton took a fine male of *Pseudochazara mamurra graeca* Staud. which was also one of our chief quarries. We then went a further mile up the road to some rocky slopes which did not yield much except in one spot near a small lake which was blue round its banks with a dancing mass of *Plebeius argus* L. On our descent in the late afternoon we halted at a rough path between some high rocks which harboured a spate of Lycaenids. Among them was a large form of *Aricia allous* Geyer, also *Plebicula dorylas* Schiff., many *P. argus* and the Skippers *Spialia orbifer* and *Pyrgus serratulae* Rambur. We made a further stop at quite low level where among some broom were flying a few *Leptidea duponcheli* Staud. with *L. sinapis* L., while our final halt on this mountain road was almost on the outskirts of Karpenission where a spring of drinking water came out of the side of the hill. Its overflow was smothered in Blues and Hairstreaks, with several *Agrodiaetus admetus*, *A. ripartii*, *N. acaciae*, *S. spini* and *Polyommatus thersites* Cant. We had also seen single specimens on the mountain of *Parnassius apollo* L., *Inachis io* L. (a purely mountain butterfly in Greece) and lower down a *Polygonia egea* Cramer. After our most successful and enterprising day John Coutsis once more took the road on his 200-mile journey back to Athens.

Another glorious day greeted us on 18th July when we ventured to some of the forest area on top of the first pass in the direction of Domnitza. We soon came across a glade by the side of the road where the brambles were smothered

with butterflies, mainly Nymphalines. There were a lot of *Brenthis daphne* Schiff. in good order, also *A. paphia* and a few *Mellicta athalia* Rott. Further up the road was a large cluster of the ground elder which also attracted a host of insects including *Heodes virgaureae* and *H. alciphron*, a few *Plebicula amanda* Scheven and quite a number of *Coenonympha arcania* L. in a large and bright form. Yet further along the road we came across more stretches of the white elder flower which harboured quite a galaxy of insects as before with many *A. paphia* and also *Fabriciana adippe olympena* Verity with very clear undersides lacking any pearly spotting. There were too a good many *P. anthelea amalthea* and *M. galatea*.

On 19th July we made a second trip up the mountain road to our locality of the previous occasion again in excellent weather which tempted us up to the heights as before where we again saw a fair number of *E. ottomana*, but only a couple of *E. melas* and many fewer *Boloria graeca* both at this spot and a mile further up the road in a grassy plateau. On the way down we came across a very late *Papilio alexanor* Esp. and Russell Bretherton took a single *Maculinea arion* L., a late female. His first capture at low level on our final day the 20th, again up to Mt. Tymphrystos, was a fresh *Cupido osiris* Meigen, also further *L. duponcheli*. This time we concentrated on the low plateau near the mountain road where there was a rocky face. Here *Satyrus ferula* was flying in plenty settling on the pincushion plant which again attracted many *Colias aurorina*. But we were soon able to realise that *P. mamurra* had emerged in fair numbers and by adroit stalking among the rocks quite a number were waylaid together with a few seen on the short grass and occasionally on the pincushions flowers. They were extremely hard to follow in this terrain owing to their very cryptic coloration. On our way down we made a final halt by the fountain where we saw some worn *Cyaniris semiargus* Rott. and our final capture was a fresh male *Lysandra coridon* Poda.

That evening we heard the ominous news that general mobilisation had been proclaimed throughout Greece following the Cyprus invasion. We set out from Karpenission early on 21st July on the 200-mile run to Athens in the hope of flying out that night as planned. We found the capital that Sunday a dead city and on reaching the air terminal were told the airport was closed and there was no means of leaving the country. Fortunately the hotel Alpha was able to accommodate us again. The next day John Coutsis showed us his new flat and his rearranged collection of Greek butterflies, a wonderful ensemble. On the 23rd after much despondency and rumours of war we heard at mid-day, after inquiry from British Airways, that a specially chartered liner was due to sail from Piraeus for Italy. We were lucky to be able to book a cabin and embarked during the afternoon, only to set out at 10 p.m. with 600 others on board. We sailed through the Gulf of Corinth, reached Brindisi in the early hours of the 25th, and were flown at once to London at no additional expense. So ended a most

successful further trip to Greece with such an adventurous and unexpected conclusion.

In all we recorded 104 species of butterflies between 8th and 21st July noted mainly in the region of Mount Chelmos in the Pelopennese and in the vicinity of Karpenission in the Veluchi range of Central Greece.

PART II: Notes on selected species by R. F. BRETHERTON

Colias aurorina heldreichi Stgr., *Plebejus pylaon* Fischer, *P. argus* L. and, to a lesser extent, *C. croceus* Fourc., were the dominant species on the Cherkobus plateau and in openings in the forest just below it (c. 1,500/1,700m.) during our visits on 10th, 11th and 13th July, all other species of Rhopalocera being relatively scarce. This dominance is probably due to their choice of the pink, spiny vetch (probably *Astragalus cycleneus* Lam.) as their foodplant, on which all four species were seen to oviposit; this is resistant to the heavy grazing which has denuded the plateau of much of its other vegetation. Males of *C. aurorina* were mostly worn, though good ones could still be picked; females were still emerging and many courtship flights were seen. We saw over a dozen of the traditionally very rare white female form, *fountaineae* Aigner: this looks on the wing like a large version of the Alpine *C. phicomene* Esp., but flies much more vigorously. Among the orange females there was considerable variation in the amount of blackish suffusion at the base of the forewings and over the hindwings, and in one specimen captured the pale marginal spots on the latter are joined to form a continuous band. The abundance of the species at this late date was surprising: on previous visits to the plateau on 24th and 26th June, 1968, it was distinctly scarce, most even of the females were worn, and no f. *fountaineae* were seen, while on 25th May, 1971 it was not seen at all, presumably because the emergence had not begun. We also found the species on Mt. Tymphristos, 60 miles to the north across the Gulf of Corinth, still in much the same condition though in smaller numbers at the same altitude ten days later. The race on Mt. Tymphristos seems to be more heavily suffused with black scales than that on Mt. Chelmos. These mountains are the northern and southern limits of its distribution in Europe as at present recorded.

P. pylaon seems to have a rather wider distribution in the Pelopennese and a greater altitude range; but I know of no reports of it north of Mt. Tymphristos, and certainly it is separated by a wide gap from s.sp. *sephirus* Friv. in Yugoslav Macedonia and Bulgaria. The Greek form is in general larger and brighter in both sexes, and is closer to the alpine s.sp. *trappi* Verity; it probably deserves sub-specific status, using like the other European sub-species a separate *Astragalus* as its foodplant. There is, however, much individual variation in our specimens both from Chelmos and Tymphristos. Size ranges from 32mm. to 40mm. in both sexes. Most males have a distinct row of black marginal spots on the hindwings upperside; but

in some these are vestigial or absent. Females usually have three or four marginal orange spots on the hindwings; but at the extremes these may be almost invisible, or they may form a continuous band on both fore and hindwings. On the underside the black spots vary in size and number, and in one fine aberration most of them are confluent; and in the females the ground colour may range from pale grey, as in the males, to light brown. But I cannot detect any constant differences between specimens taken on the two mountains or previously on Mt. Parnassos.

Agrodiaetus ripartii Frr. and *A. admetus* Esp. We found these species in many places from about 500m. on the road from the coast to Kalavrita to 1,100m. below the Cherkobus plateau, and also above Karpenission frequenting dry banks or water courses, especially near trees or bushes. Usually both were present together, but *A. admetus* was much the scarcer; that has also been my earlier experience. It is, however, not easy to separate them on the wing or in the net. The best character, in Greece at least, is the presence in *A. admetus* of rows of pale, orange centred, spots on the margins of both fore and hind wings underside; in *A. ripartii* these are absent or, at most, vestigial. *A. admetus* also has slightly fuller, more rounded, forewings and a browner, less grey, ground colour underside with stronger and more numerous ocellations on the hindwings, including two basal spots against only one in *A. ripartii*. Other often cited distinctions are unreliable in Greece. Mr. John Coutsis has pointed out (1972, *Ent. Rec.* **84**, plate VIII) that the white streak on the underside hindwings, which is always present in *A. ripartii* in the French Alps, is often absent or very faint in Greek specimens: this is the case in 11 out of 27 specimens of both sexes in my own collection, from several different localities. On the other hand, *A. admetus*, which in Greece usually lacks the streak, occasionally has at least a short one. Again, the presence or absence of orange spots on the upperside of the females is not a reliable test; they may be either present or absent in Greek specimens of both species, although in alpine *A. ripartii* they are always absent. But it must be accepted that specific relationships in *Agrodiaetus* are extremely difficult to determine; chromosome counts, which so far as I know have not yet been made for these species in Greece, might yield surprising results.

Heodes alciphron Rott. we found in small numbers and rather worn on the flowers of Danewort (*Sambucus ebulus* L.) at Aroania in the Peloponnese and again at about 1,200m. in the forest above Karpenission. The males are very heavily suffused with purple sheen and the females almost black; they are probably referable to s.sp. *chairemon* Frhst., which I found in 1972 250 miles further north in the mountains of Montenegro, and which is also widespread in Albania (Rebel & Zerny, 1931). But, as Mr. Coutsis has pointed out to me, these are very different from the bright, lightly marked form which occurs

in between in Greece itself, on the Pindos and Mt. Olympos. This distributional puzzle needs investigation.

Boloria graeca graeca Stgr. was locally fairly common among rocky outcrops at 1,800/1,900m. on Mt. Tymphristos, well above the tree-line; males were mostly worn, some females still in good condition. This is probably the type locality from which Staudinger described the species in 1870, and also its southern limit in Greece; its distribution northwards there is apparently unrecorded, though it occurs in the rather different s.sp. *balkanica* Rebel throughout the northern Balkans and, as s.sp. *brogotarus* Frhst., in the French Alps and the Italian Apennines, where it is found down to the tree-line. The food-plant is, I believe, still unknown.

Mellicta athalia Rött. was rather scarce and going over in the forest above Karpenission; Mr. Coutsis and I also found it in 1970 on the north side of Mt. Parnassos, which is its southern known limit in Greece. It is a variable but heavily blackened race, which looks much like s.sp. *boris* Frhst. from Bulgaria.

Erebia ottomana bureschi Warren was fairly common in Mt. Tymphristos, on a grassy slope a little below the level of *B. graeca*; males were all fresh, but only two of the strikingly dimorphic females were caught. A main character is great size: up to 50mm. in the males and 52mm. in the females, which is much larger than s.sp. *durmitorensis* Warren in Montenegro and still more than s.sp. *tardenota* Praviel in the French Massif Central. Another feature is the bright colour of the underside, especially of the hindwings, which are mottled greyish white in the males and light greenish brown in the females; these also have a conspicuous reddish patch round the twin ocelli on the forewings upperside. Though the name "*ottomana*" probably refers to Asia Minor, "Veluchi Mts.", almost certainly Mt. Tymphristos, is the original locality for the species in Europe; and it still seems to be the only recorded place for it in Greece, at least south of the frontier mountains.

Pseudochazara mamurra graeca Stgr. was just beginning to emerge on Mt. Tymphristos at about 1,700m.; we saw only males, mostly on our last day, 20th July. Emergence seemed to be taking place at about mid-day on fairly flat ground covered with grass and large stones; but the insects soon took refuge among rocks on the sheltered side of ridge. There they often sat quietly for several minutes, and could therefore be captured after some rather athletic stalking—unlike the newly emerged *Erebia melas* Herbst which frequented similarly awkward ground a little higher up. But, sitting with closed wings, they were very well camouflaged and needed to be watched for in profile. They seemed to show little interest in the flowers which were attracting other species. So far as is known the species is in Europe found only on high mountains in Greece; but there it extends to Mt. Chelmos and the Taygetos in the Peloponnese, and to Mt. Parnassos, in forms which are similar to those of Mt. Tymphristos, and is found also further north in the Pindos in a much browner race, which may possibly turn out to be specifically distinct.

Heodes virgaureae balcanicola Graves is also probably at its southern limit in Greece on Mt. Tymphristos. We found it very commonly in the forest, feeding especially on the flowers of Danewort. The form seems to be identical with that found further north in the Balkans.

Zygaenidae. We took such Burnets as came our way, without special search. I am indebted to Mr. W. G. Tremewan for identification of the following species and sub-species: *Zygaena purpuralis hellena* Burgeff, Tymphristos, 1,700m., three 17.7; *Z. carniolica eurythaenia* Holik, Tymphristos Forest, 1,100m., many 16.7; *Z. ramburi helmosica* Reiss, Cherkobus Plateau, 1,600m., three 11.7.44 (presumably the sub-specific type locality); *Z. ephialtes tymphrestica* Holik, below Megaspeleion, c. 500m., 9.7, a variable group on flowers on the wayside: in one specimen the usually red basal spots and abdominal band are bright yellow, while in others the outer white spots on the forewings are filled in to varying degrees with red. Scattered specimens also elsewhere, including the Tymphristos Forest.

Scotland 1974

By EDWARD A. SADLER

St. Christopher, West Tisted, Alfresford, Hants.

Hearing at the beginning of May that the season in Central Scotland was well in advance of normal (which was not surprising considering the mild winter), and that *Eurois occulta* L. larvae were available, my friends Messrs. Meredith, Skinner and Rogers and I assembled near Bristol on the morning of 7th May, and piling into one car, drove the length of the country using the western motorways.

We arrived in the Trinafour region of Perthshire at 4 p.m. that day, and were soon searching the roadside posts for the whitish form of *Cleora cinctaria bowesi* Richardson, finding six fresh specimens. Also present was a number of *Acronycta menyanthidis scotica* Tutt, among which was a female which laid a large batch of ova from which some of us reared the resulting larvae.

This area was our intended scene of operations for that night when we hoped to find *occulta* larvae, but noted with some misgivings the condition of the bog myrtle which apart from very dried up catkins, looked devoid of life, with hardly a leaf-bud to be seen.

After arranging accommodation at our usual hospitable farm, we put out six m.v. traps across the surrounding rough fields and then drove back to the Tummel area, where on our way up we had noticed things appeared more forward and with the birches in leaf, but found that the bog myrtle was in the same bare state as at Trinafour. At dusk we searched the leafy seedling birches for larvae of *Polia hepatica* Clerk, finding only a few fully-fed examples of this and a few other larvae coming up to feed as it grew dark. Some *Trichopteryx carpinata* Borkh. came on the wing but were worn. Surprisingly, *Petrophora cholersata* Scop. was well out among the bracken beds, though

not yet seen this season by any of us in the south. A swallow well in blossom had a fair number of moths in attendance, including *Cerastis rubricosa* D. & S., *Orthosia gothica* L., *O. incerta* Hufn. and *O. gracilis* D. & S.; some of the latter both here and later in the traps being attractively flushed with pink, and among them females which laid ova from which we ultimately obtained numerous pupae.

We drove back to Trinafour in leisurely fashion as we understood that *occulta* larvae only come up to rest on the bog myrtle late at night. On arrival however, we found that two friends who had preceded us by a few days were already searching the plants and had found a few larvae. Joining in the quest we found *occulta* very few and far between, and looking very similar I noticed, at this one-third grown stage, to young larvae of *Eugraphe subrosea* Steph. and sharing with that species the awkward habit of dropping if one's approach was not deft enough to secure them immediately.

Our friends departed around midnight, having obtained enough larvae on this and previous nights to satisfy their requirements, and I watched their going with some envy as we continued searching the plants with our lamps on into the night. At 2 a.m. we found ourselves not only tired, but with few larvae to show for our efforts, and one member of our party having had the misfortune to find nothing so far. The situation changed dramatically over the next hour however, and we began finding larvae commonly, some nearly half grown, which was surprising considering the apparent lack of nourishment and their reluctance to feed even when up on the foodplant, as all we found were just sitting quietly on the bare twigs. We noted later that our captive larvae preferred the catkins to the few leaf-buds of the plant we were able to find, and even ate these dry-looking morsels when tender young birch leaves were offered, though the latter and other alternatives were consumed readily once our supply of catkins was exhausted. Our larvae also fed freely in the daytime and another surprising thing was just how closely some *Noctua comes* Hübn. larvae (gathered at the same time for the varieties which occur in this area) resembled some paler *occulta* larvae. Indeed, one of two were still doubtful until they went down for pupation weeks later, the smaller *comes* then going down leaving pale *occulta* to feed on to the truly grand proportions these interesting larvae eventually reach. We packed up at 3 a.m. having seen by then well over a hundred larvae, and these mostly in the last hour.

Despite retiring at 4 a.m. we were up at 7.30 to inspect the intake at our traps, finding a fair sprinkling of *Cerura vinula* L., *Polia bombycina* Hufn., *Xylena vetusta* Hübn., *O. gothica* and *O. gracilis*, with single specimens of *Odontesia carmelita* Esp. and *Acronycta euphorbiae myricae* Guen.

After breakfast we drove north to Aviemore, stopping at a roadside quarry on the way to collect a few *Entephria flavicinctata* Hübn. larvae which one of our party required, noting as we quickly shook the necessary number

from the saxifrages, that they were as small as one would expect at this early date.

On arrival in the Aviemore area we spent some time searching posts for *myricae* but only discovered one for our trouble. As usual a number of larvae of *Lasiocampa quercus callunae* Palmer were on the posts, mostly about one-third grown, and unusually, a fine male *Endromis versicolor* L., which must have been a rather late example, as there were newly hatched larvae of this species on the young birches nearby.

We also visited the bilberry areas that afternoon, but with hardly a leaf to be seen, only carried out a brief token beating through the *Semiothisa brunneata* Thunb. colony, and obtaining one half grown *Syngrapha interrogationis* L. We hoped for better luck here in June when we intended to return.

After dining at the Aviemore Centre we split up into two pairs at dusk, one couple working the broom bushes on Granish Moor for *Chesias rufata scotica* Richardson, the other two searching elsewhere for *Paradiarsia sobrina* Dup. larvae. Heavy rain clouds were now assembling, and an accompanying strong cold wind nullified the search for the latter, virtually no larvae of any kind being brave enough to come up to feed. We learned at 11 p.m. on reassembling that despite appalling conditions the few *rufata* required had been taken. We were by now grateful to seek the shelter of our car, and leaving Aviemore returned to Trinafour, calling at the *occulta* area of the previous night as we passed and finding there a good number of larvae in the half hour between 12.30 and 1 a.m. that we stayed, the night being much milder in that locality.

Our inspection of the traps early next morning produced nothing new from the first night's intake, and we packed them up before breakfasting preparatory to the long journey south, and arrived ten hours later at our respective homes after a very busy 64 hours absence.

The morning of 9th June found Pat Meredith and myself journeying north and once again heading for Scotland on a six-day collecting trip. Our companions of the May visit, Messrs. Rogers and Skinner, had preceded us on this occasion by several days, and although forewarned that the weather was bad, we were unprepared for the coldness of the wind and threatening sky on arrival at Aviemore late that afternoon, the place looking just as grim as when we last saw it a month before!

After settling into a bungalow on the edge of the reserve we contacted the advance party who were staying in another part of Aviemore, and commiserated with them over dinner on the unseasonable weather. Afterwards they helped us add our two traps to theirs located around the edge of the reserve, noting as we did so that a fresh snowfall was showing lower down the slopes of the Cairngorms than I had even seen it much earlier in the spring of other years. It was no surprise to learn that so far our friends had only seen one specimen of *Hyppa rectilinea* Esp., one of the very few moths which had

responded to their lights during their stay, and the coming night looked far from hopeful.

At dusk I sugared the up-wind side of the reserve, approaching the task with more enthusiasm than the others, who were tired of putting sugar out night after night for nothing, and I ran out about 400 yards on a convenient deer-fence. With cold rain showers starting as darkness closed in, the other two sensibly retired to their lodgings for a night's rest, leaving me the sugaring round as my companion Pat, had already gone off to search for the *sobrina* larvae he still required.

I was delighted to find two *rectilinea* in attendance on the pitches at my first inspection, a new species for me, though the others had all obtained some specimens in previous years. A few *Blepharita adusta* Esp. and *Hada nana* Hufn. were the only other visitors. Two more rounds produced nothing new and with the rain getting heavy enough to wash my sugar patches away, I sought my companion, who had managed to find one *sobrina* larva and we agreed to call it a night.

Meeting up with the others after breakfast the following morning, we decided to take advantage of rain-free conditions to visit the bilberry areas, where, over the past few days our friends had beaten and swept several *brunneata* larvae, but finding that the vegetation was still very wet we spent several messy hours in obtaining only a few larvae each for our trouble. Perhaps a word here on identification of this larva from numerous others on bilberry may not come amiss, as illustrations of this species are few and far between and not very accurate we have found. Without going into lengthy descriptions of colour and shape we found the simplest method was to observe the attitude of the newly captured larva on beating tray or sweep net. The larva of *brunneata* lies as if dead for a short period in a very characteristic tight horse-shoe shape, in which front and rear halves are touching, belly to belly. *Hydriomena furcata* Thunb. larvae when younger bear a superficial resemblance to those of *brunneata* but are less colourful; moreover, *furcata* tends to twist sideways with head tucked into its side, a characteristic that readily separates it from the larva of *brunneata*. One other aspect of the life of this local species which may be of interest is just where the majority of these larvae manage to hide themselves. Two members of our party have seen this moth flying abundantly in previous seasons over the areas we were beating, yet all our work on this and other occasions during our stay produced less than two dozen larvae, which may not sound many but is in our experience an unusually high number compared with our efforts of previous years. We have tried different dates, weather conditions and times of day and night without noticeable improvement, several times drawing a complete blank when larvae must have been present in considerable numbers. Among other larvae that we beat here were a few *interrogationis* and *Trichiura crataegi* L. and those of *Eulithis populata* L. and the previously mentioned *furcata* were common as usual.

By mid-day it was raining once more, so we called into one of our cars and headed for Rannoch, where an attempt some years ago to locate *Conopia scoliaeformis* Borkh. in the vast birch woods of that area had failed miserably. But armed this time with more precise information, we located a colony without any trouble, finding a few pupae, several larvae and some vacated cocoons of this season as well as some with parasitic cocoons. We regretfully abandoned our search at 8 p.m. having spent a pleasant afternoon in the sun for a change. Passing through the Dalwhinnie area on our return to Aviemore we were treated to a grand display of Red Deer feeding in small herds spread several miles along our road, and we must have seen between one and two hundred of this our largest animal, looking splendid in the late evening sun.

Back at Aviemore the weather had not improved, and as we dined at the Centre overlooking the reserve we watched a similar night build up to the previous one, while one member of our party reminisced about a certain collector who in the past had sugared the line of posts bordering that side of the reserve we were looking at finding some 90 *rectilinea* on his patches! We were suitably impressed by these recollections of a bygone era, and though conditions looked grim we noticed a slight rise in temperature as we left the Centre, where we split up into two pairs with the others going to Craigellachie to sugar, while Pat Meredith and I tried the reserve once more, where we resolved to put out as large a sugaring round as possible. While my companion sugared posts at one end of the reserve, I renewed my patches of the previous night in the opposite direction until a new deer-fence bisecting this large birch wood was reached. I sugared down this through the middle of the wood until I emerged on the Aviemore side, but finding the legendary fence posts now new and freshly impregnated with wood preservative, I ignored these and instead sugared the birch trees along the wood's edge until I met up with P.M.'s patches, the effect being that one half of this large wood was surrounded with our bait. As it was now dusk, a look at my friend's patches produced three *rectilinea* immediately which was a hopeful start, and finding him already *sobrina* hunting I began inspecting my sugar where over the next hour or so I enjoyed good sport seeing an estimated 80 specimens of our quarry, as many as four being in attendance on some posts and I was able to select a fine series for myself and my companion in the one circuit, this really proving a "Saxon" night, as only the handful of other common species present showed. It was by now almost dawn, and with no time to inspect the patches a second time I sought out my friend who had taken a few more *sobrina* larvae despite the late date, and we retired to our beds once more in daylight, well satisfied with the night's work.

Comparing notes with the others later that morning, we found they had seen ten *rectilinea* on a much shorter sugaring round than ours. It was interesting to find that our four m.v.

traps had failed to take any *rectilinea* and very few other moths, and we helped our friends pack up their traps as they intended returning home at mid-day, and later packed up our own since we no longer needed *rectilinea*. The rest of the morning was spent bilberry beating, and a few more *brunneata* were added to the score despite heavy drizzle making conditions unpleasant. In the afternoon we visited Kincaig Wood, site of previous triumphs, but found that the council had made serious inroads into the open front part where we used to camp in our mad youth. However, all had not been entirely detrimental to the local wildlife, as a recently bull-dozed hillside had left a small sand face which now housed a thriving colony of some dozen Sand Martin's nesting holes.

With the weather brightening up for the first time since our arrival, we now visited Granish Moor, where we patrolled the *Perizoma blandiata* D. & S. colony sites for several hours but only took one example and the only specimen of this we were to see. After dinner that evening, we visited the field around Kingussie where there are colonies of *Odezia atrata* L., and swept numerous larvae of this species from the flowers of Earth-nut. Selecting only the larger nearly full-fed examples, we gathered sufficient flowers to feed them on and dug up a few plants in case fresher food was required, sampling a nut-like root as we did so just to confirm that it does make good eating as we had heard. I have to report that after the first "nutty crunch" my bulb tasted peppery, but my companion enjoyed his so much that I feared for the safety of the other plants, but need not have worried as the larvae fed up and pupated within a few days without requiring the fresh supply, though something it seemed went wrong in the rearing as for some unknown reason they all emerged dwarfed.

An attempt to beat *brunneata* larvae that night produced three full-fed examples and numerous mosquito bites, one of these larvae spinning up the next morning. Retiring fairly early and in darkness for a change, we rose early the following morning to pack our possessions aboard the car, and after breakfast we headed west for the coast and the Isle of Mull, which was a new collecting ground for both of us. Our intention was to try for *Zygaena loti scotica* Rowland Brown, and knowing the species had been seen in fresh condition at the end of June in previous years, hoped we were not too early for it at this date (12th).

I was pleased to obtain a good view of four Drake Eiders as we drove along the shore of Loch Eil, which allowed a fairly close approach on foot before they scurried off moorhen-like out on to the Loch to a safer distance. Not so pleasing was the rain which began falling as we approached the ferry, and we hoped the bad weather had not retarded things on Mull. Reaching the ferry at Lochaline at mid-day we crossed and found it drizzling on the island, and with such gloomy prospects before us set off at a steady pace along the narrow lanes with their posted passing places, but our pace quickened as the rain stopped and as it became apparent the sun might break through

we were soon hurtling by timid tourists at the passing places as if we had driven on Mull all our lives!

By 2.30 p.m. we had reached the area near Loch Scridain where the most southerly of the two *loti* colonies we knew occurred, but failing to locate the exact spot we not suprisingly found no sign of our quarry. It was by now almost sunny, and fresh *Boloria euphrosyne* L. and *Euphydryas aurinea* Rott. came on the wing along the shore. I was soon digressing from our task, searching among the numerous bi-valves strewn all over the beach for interesting specimens, but was hastily dragged away to drive to another *loti* colony on the shore of Loch Tuath where I was able to accurately pin-point the site. There we instantly found freshly emerged specimens sitting singly or *in cop.* on the few projections such as plantain seed heads and dwarfed bracken fronds on this otherwise lawn-like sward, and were speedily able to box enough for our needs, after which with the sun out at last we spent some minutes watching *loti* on the wing. We now agreed to push our luck further by visiting Calgary Bay which we knew held a colony of *Zygaena purpuralis caledonensis* Reiss, though our only information as to its precise whereabouts was that it occurred on a high steep bank above the bay. On arrival we found the whole bay on both sides for several miles fitted this description, and with no time for a prolonged search we drove aimlessly around the bay until the sand-dunes at the end came into view which looked vaguely like the species' habitat on the Burren in Ireland. Having inspected these without much hope of success as they hardly fitted the description, a grassy slope nearby caught my eye, and as I climbed the fence at the bottom I was pleased to see specimens of *caledonensis* at rest on dead grass stems around me. As we began boxing these we found all around the fence area that the specimens were deformed in various ways, but that at higher levels they were fresh and perfect and with as many as five individuals clinging together on some stems, we once again quickly obtained what we required. With the afternoon now drawing on we made a dash for the ferry and mainland, but our hopes of reaching Trinafour by nightfall were abortive. We only managed to reach Fort William by 10.30, so stayed the night at an isolated bungalow just out of town where we were not only made welcome at 11 p.m. with a freshly made pot of tea but found our room provided us with a magnificent and un-interrupted view of Ben Nevis from the window, where by chance the first clear night of our holiday gave us a perfect view of the whole mountain in clear detail even though nearly midnight, and its snow-capped summit appearing to almost overhang us. A truly splendid ending to a lucky day!

We returned next morning to Trinafour in sunshine and after arranging a bed for the night at our usual farmhouse, we made for the nearby *occulta* area of our first visit, finding as hoped that *Rheumaptera hastata nigrescens* Cockerell was on the wing, and we spent several hours over the middle of the

day patrolling the now leafy bog myrtle beds netting seven specimens and seeing a few others. We kept one female alive and from ova that she laid obtained a number of pupae. We also flushed three *Diacrisia sannio* L. at this locality, including a single female which later oviposited. I was especially pleased to take my first specimen of *Aricia artaxerxes artaxerxes* F. when netting an unidentified grey insect which was being pursued by a *Coenonympha pamphilus* L. and obviously an early forerunner of the brood, as this and other suitable areas near-by failed to produce more.

Dragging ourselves away from this productive spot, we now visited the nearby *Coenocalpe lapidata* Hübn. colony where we swept all types of vegetation in the hope of discovering this elusive larva but met with no success, though among miscellaneous larvae we did notice a few *Lycia lapponaria* Boisd. obtained from bog myrtle. Although now mid-afternoon, we again drove to Rannoch for a last try for more *scoliaeformis* pupae, but despite our developing a better technique in locating these hidden workings over the ensuing four hours, little was added to our original number, as over a dozen were found to have recently emerged and as usual parasites had taken their toll as well; also, among the larvae found were some probably destined for next season's emergence.

Back at Trinafour that evening after dinner we caught up on some setting, until midnight when we deemed the time right for another try for *lapidata*, but once again we spent a cold and unprofitable hour sweeping and searching by torch-light, seeing much the same species as at our earlier attempt and we were forced to admit our first failure of the holiday, consoling ourselves with the thought that as far as we are aware no one else has located these larvae in the wild either!

We packed up and left Trinafour next morning, passing reluctantly through the bog myrtle areas in sunshine on our way south, but as we intended trying for one more species further down in Scotland, we were unable to spend time looking to see if more *nigrescens* and *artaxerxes* had emerged.

Our final quarry was the larva of *Epione paralellaria* D. & S., and reaching the locality by early afternoon, managed to sweep 13 small larvae of this species from dwarf willow from which we later reared the moths. Thus ended a very successful holiday and we finally left Scotland and headed homewards. Two *scoliaeformis* emerged on our journey back, and it was nice to find *occulta* just starting to emerge from our pupae on arriving home.

LARVAE OF *PIERIS BRASSICAE* L. AT CHRISTMAS. — Referring to the extraordinary winter, while staying in Ferndown, Dorset at Christmas, I noted a number of larvae of *Pieris brassicae* Linn (Large White butterfly) still feeding on cabbage in the garden. Several others were crawling up the walls of the house and garage. There were a few fresh chrysalids on the walls. — G. H. YODEN, 18 Castle Avenue, Dover, Kent.

A Brief Visit to Northern France and Belgium: Late May 1974

By C. G. M. DE WORMS
Three Oaks, Shores Road, Woking, Surrey

The north-eastern corner of France bordering the Belgian frontier is certainly a part of the continent of Europe that has not figured apparently for a long time in our entomological literature, especially as regards its lepidoptera. But most fortunately on the Belgian side the recent Atlas Provisoire of the insects of that country published under the direction of M. Leclercq has greatly enhanced the knowledge of the distribution of species in several Orders. In particular many species of butterflies and moths of that country are enumerated together with excellent maps of 10 km. squares drawn up by M. Verstraeten at the headquarters of Sciences Agronomiques situated near Gembloux. It is perhaps surprising what a rich area this part of Europe is for many local insects. It was with this intention of sampling this region, somewhat neglected by British lepidopterists, that I got in touch with Major Anthony Bedford Russell who was stationed in this area in connection with his duties with NATO.

He very kindly asked me to visit him at the end of May, when I duly set out in very unpropitious conditions on the 24th, travelling by boat to Calais and thence by train via Lille and Valenciennes to the big junction at Aulnoye where his wife met me. We drove the 10 miles to Bellignies, their home for more than a year in a part of the Château de Croy made famous in the 1914-18 war as a refuge for escaping British prisoners. En route we skirted the great Forêt de Mormal, formerly one of the most prolific localities in France for the *Apaturas*. This was our venue on 25th May when my host drove me to the southern region of the forest which is about ten miles long by four in breadth. It is well-known that this grand area which is still very dense, was much ravaged in two wars and is now well tended by the local municipality so that regrettably much hornbeam has replaced oak and we could find little *Salix* anywhere along the paths or rides. We worked a big open area that had been recently cut. Conditions were very warm, but we were disappointed at the lack of insects. There were a few *Clossiana selene* Schiff. and *Anthocharis cardamines* L. Other butterflies seen were *Callophrys rubi* L., *Polyommatus icarus* Rott., *Pararge megera* L., *Ochlodes venata* Br. & Grey and lots of brimstones. Among moths flushed were two *Parasemia plantaginis* L., one of which was the white male *f. hospita* which is usually associated with high levels in Britain. The small noctuid *Eustrotia bankiana* Fab. was also on the wing, while the commonest geometers were *Minoa murinata* Scop. and *Pseudopanthera macularia* L.

The next morning, 26th May, dawned rather overcast. However, we set out early and soon after entering Belgium less than three miles from Bellignies, we got on to the big motorway from Dunkirk to the Rhine. It was not long before we did the

stretch to Namur where we turned southwards along part of the Meuse Valley towards Dinant. At this period about mid-day the clouds cleared and the rest of the day was of brilliant sunshine and very warm, which made for very good collecting as we soon found there was plenty on the wing to keep us busy in this delectable part of the Ardennes Forest. Our first halt was along a wooded road near the small village of Nassognes where near a large clump of nettles we took a female of *Araschnia levana* L. of the true spring form with its full map markings. On a nearby slope were flying *Clossiana euphrosyne* L. and *Hamearis lucina* L. which was to prove very prevalent in the district. We made a further halt near a marshy patch not far from St. Hubert. Here we met with the first *Erebia medusa* Schiff. which we were surprised to see on the wing at this somewhat early date in the north. We also came across *Carterocephalus palaemon* Pall. as well as *Cyaniris semiargus* Rott. in an adjoining wood. We had a picnic lunch among the beeches of the Forêt de St. Hubert and from a large patch of bilberry was flying a number of the little Emerald *Iodis putata* L., which is very similar to *I. lactearia* L. but is absent from the British Isles. Our main quarry was *Coenonympha hero* L. which according to Atlas Provisoire was to be found around St. Hubert and Rochefort. We visited several likely-looking localities, but failed to find it in this part of the Ardennes. However, we came across at least two large slopes with rough grass and wooded background which was alive with butterflies. In each *E. medusa* was comparatively common and quite fresh, but all males. *H. lucina* seemed to be everywhere with quite a good sprinkling of *C. palaemon*. *Leptidea sinapis* L. was quite numerous as were *Pyrgus malvae* L. and *Erynnis tages* L. We were surprised to find *Mellicta athalia* Rott. already out and we also saw *Clossiana dia* L. and a single *Colias croceus* Four. En route home in a small wood my host caught a worn *Eu Vanessa antiopa* L. which must have been at least eight months old. We returned to the Château de Croy by a much more cross-country route through the southernmost parts of Belgium adjoining the French frontier. We were well pleased with the numbers and variety of insects we had seen on this 200-mile tour.

After a promising start on 27th May conditions somewhat deteriorated till the afternoon when I accompanied my host once more to the Forêt de Mormal. Again the most common butterfly was *C. selene*. More *P. plantaginis* were on the wing and we flushed a good many geometers, mainly *Cepphis advenaria* Hübn., *Perizoma affinitata* Stepens and *Idaea dealbata* L. But a heavy thunderstorm put an end to our operations there. We were however welcomed on 28th May by a very fine warm day which we were able to put to very good advantage. We set out early to visit the great forest region which spans the area of Belgium between the Sambre and Meuse rivers. This large region seems quite unspoilt and we were able to visit a good many localities in it, starting off with the Forêt de Chimay. Here in a clearing both *C. euphrosyne* and *C. selene*

were comparatively numerous and in good order. In another part of the great forest we walked up a wide ride lined with willows and aspen and searched in vain for larvae of the *Apaturas* and of *Limenitis populi* L. which is prevalent in these forests in mid-June. Both the small fritillaries were again common. Later we found a rough grassy slope bordering a disused quarry where *E. medusa* was flying. It was near the *hameau* of Aublain, a point for this species more westerly than any marked on the Atlas Provisoire. In this spot we also saw *C. palaemon*, *Spialia sertorius* L. and *Cupido minimus* Fuessly. In the later afternoon we halted in another part of the forest where we came across *N. lucina* in another very westerly point of its range as well *Thymelicus sylvestris* Poda, a very early date for this Skipper. We returned to Bellignies via Beaumont and Malplaquet, scene of the famous battle in 1709. The grounds of the Château de Croy produced a good many *A. cardamines* and *Pieris napi* L. We recorded just 30 species of butterflies in the four days of quite profitable collecting in this very interesting part of northern France and southern Belgium. On 29th May I returned by the same route as I arrived, taking the Milan express at Aulnoye to Calais and reaching London the same afternoon after what had proved a most pleasant and profitable few days thanks to the kindness of my hosts.

Notes and Observations

BUTTERFLIES IN THE ISLES OF SCILLY. — I was interested in the article *Late Autumn in the Isles of Scilly* by Mr. R. P. Demuth (*Ent. Record*, **86**: 72-73). I have been bird-watching in the Scillies during early October since 1968, but unfortunately have kept butterfly records only since 1971. The weather during my visits in 1971 and 1972 was, for the most part, warm and sunny, in 1973, colder but still fairly sunny, but in 1974 it was cold and showery with frequent strong winds, hence the paucity of sightings in the last two years, particularly in 1974.

Detailed below are my sightings for the four years:

1971 (2nd to 9th October): Speckled Wood (*Pararge aegeria*), numerous — easily the most abundant species. Red Admiral (*Vanessa atalanta*), common; seen on St. Mary's, Treco and St. Agnes. Painted Lady (*Vanessa cardui*), fairly common. Small Copper (*Lycaena phlaeas*), a few seen, mainly on St. Agnes.

1972 (30th September to 7th October): Speckled Wood, common. Wall butterfly (*Pararge megera*), one on St. Mary's. Red Admiral, common; particularly in the Abbey Gardens, Treco. Painted Lady, only two seen. Small Tortoiseshell (*Aglais urticae*), very few seen. Meadow Brown (*Maniola jurtina*), one or two on St. Agnes. Common Blue (*Polyommatus icarus*), two blues swirling away in the wind on St. Agnes were almost certainly of this species. Large White (*Pieris brassicae*), a few seen. Small White (*Pieris rapae*), a few seen.

1973 (29th September to 6th October): Speckled Wood, seen on St. Mary's and St. Agnes, but fewer than in previous two years. Red Admiral, few; seen on St. Mary's, Tresco and St. Agnes — most on the last named. Painted Lady, one seen on St. Mary's. Small Copper, total of seven seen, all on St. Mary's. Clouded Yellow (*Colias croceus*), one seen on St. Mary's. Monarch (*Danaus plexippus*), a reliable report of one caught by schoolboys on St. Mary's.

1974 (28th September to 5th October): Speckled Wood, few; seen on St. Mary's and St. Agnes. Red Admiral, one seen on St. Mary's. Small Copper, four seen on St. Agnes, one on Bryher. Large White, one or two on St. Mary's and St. Agnes. Small White, one or two on St. Mary's and St. Agnes.

I have not kept any records of moths, but I clearly remember on my visit to the island in October 1969 seeing a Humming Bird Hawk Moth (*Macroglossum stellatarum*) in the Abbey Gardens on Tresco. — G. SUMMERS, 23 West Close, Stafford, ST16 3TG, 9.x.1974.

FURTHER RECORDS OF *MACROGLOSSUM STELLATARUM* L. IN S. DEVON IN 1974.—Since noting a *M. stellatarum* in my m.v. trap on 23rd June, I have recorded the following daylight sightings: — 28.vi (2), 1.vii (2), 14.vii (2), 19.vii (1), 20.vii (1), 23.vii (1), 26.vii (1), 20.viii (2), 2.viii (2), 8.viii (1). All moths were flying along the cliff face at the north end of Clapton Sands.—H. L. O'HEFFERNAN, 3 Coombe Meadows, Chillington, Kingsbridge, S. Devon.

ILLEGAL IMMIGRANT BY COURTESY OF CRAYFORD (KENT) FREIGHT SERVICES: *THERETRA NESSUS* DRURY. — Tom Fox, a member of our local Field Club, was handed a Hawk Moth recently which he has passed on to me. The moth was found by Colin McIver (whose company use aluminium containers for export and import) when inspecting an empty container following its arrival from Australia to this country with a load of meat. The container, approximately 20 feet by 7 feet by 7 feet, is the type where as soon as the lid is sealed the built in refrigeration plant starts. One can only assume that the moth, having found a niche in an eyehole in the floor, was then frozen to death. It was in reasonably good condition apart from a rubbed thorax, and has been identified as *Theretra nessus* Drury, an Indo-Australian species. My thanks to Mr. Stanley Jacobs who took it to the British Museum for me, and to Mr. Alan Hayes of the Museum staff, who identified it. — P. J. RENSHAW, 53 Links Road, West Wickham, Kent, 15.ii.1975.

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Back numbers.—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

The Maidstone Museum have recently set up a Kent Biological Archives and Record Centre, which can now receive records based on the tetrad system (2 Km. sq.), for all insect orders. In particular, a scheme is being set up to record both Macro and Microlepidoptera from 1971 onward. This is to run in parallel with the very successful plant scheme. The records will be available to any serious student of the Fauna or Flora of Kent. This ambitious scheme obviously must enlist the help of as many resident and visiting Lepidopterists as possible. For further information, please write to: S. E. Whitebread, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent, ME3 7NX. Records for other insect orders should be sent to Mr. E. Philp at the Maidstone Museum, St. Faith's Street, Maidstone, Kent.

Wanted. — Samples of *Apamea monoglypha* (Dark Arches) from MV traps, to aid an investigation into the frequency of melanism in this species. We would like to obtain random samples, caught during the 1974 season, from any locality in the British Isles. If you think you might be able to help and would like further details please write to — J. Muggleton, Dept. of Zoology, University of Manchester, Manchester M13 9PL.

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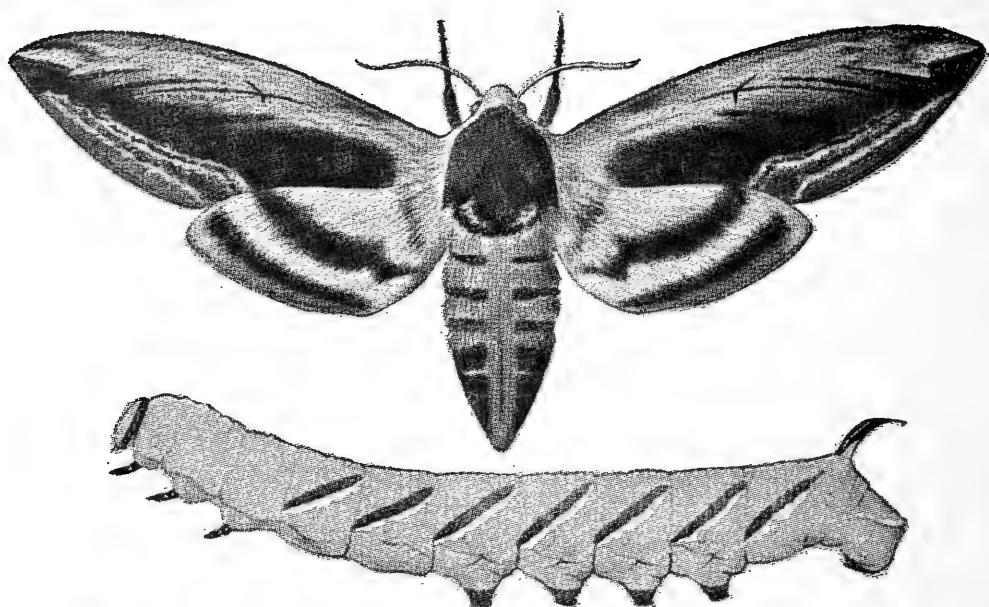
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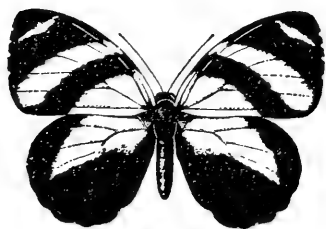
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PLATE III



Figure 1 (top)

Figure 2 (bottom)

Melanism in the Larvae of *Abraxas grossulariata* Stephens

By M. L. STREET

Department of Biology, Shenstone New College, Burcot Lane,
Bromsgrove, Worcestershire

Melanism is frequently found in lepidopterous larvae although it has not received as much attention as adult melanism. Heslop-Harrison (1932) records it in 20 species mostly within the family Geometridae. Black larvae of *Abraxas grossulariata* were first recorded in the county of Tyne and Wear as early as 1894 (Buckler, Ray Society). All later records were also from this region except for one record from Bromley, Kent (Adkin, 1905). Apart from the description by Buckler, all other authors make only a casual mention of intermediate forms. Most interest was not in the larvae themselves but in the possibility of obtaining adult aberrations from them. It is the purpose of this article to record that *A. grossulariata* has established a permanent polymorphism in its larvae in the county of Tyne and Wear and to describe some intermediate forms.

All records in the North-East of England are from industrial areas. I have records from Tynemouth and Newcastle and other authors record black larvae from Blaydon, Birtley and Durham. The distribution seems to be localised and any records outside these areas would be of interest.

In all cases the first instar is cream and it is not until the second instar that it develops the black markings that are maintained throughout the rest of larval life. The normal colouration in side view is of alternating black and cream areas (Fig. 1) producing a chequerboard effect. There are black rectangles on the dorsal surface and from side view these are followed by black dashes, followed by two further lines of black rectangles with a red stripe between them. On the ventral surface are two continuous black lines separated by a mid-ventral cream line which becomes broader and red between the legs. The first segment behind the head is also reddish. The completely melanic larvae and the intermediate forms occur when the black areas join up antero-posteriorly and spread dorso-ventrally to obliterate the cream areas. Stokoe (1948) states that there is a "completely melanic form save for a broken yellow colour immediately behind the head". The specimen in Fig. 1 was the nearest to a completely black form seen by the author. It had no yellow collar but there was still the red stripe between the legs.

A sample of 30 full-grown larvae were taken off Black-currant bushes. Most of the larvae appeared to be superficially normal, but a closer examination showed that this was far from true. The degree of melanism was recorded in the table below and was based on the degree of expansion of the black areas antero-posteriorly to join and form a band. The black areas were labelled 1-4 beginning with the dorsal black patches and ending with those beneath the red stripe.

TABLE 1
Degree of Melanism

	A Black or nearly so	B 1, 2, 3 & 4 in bands + heavy dorso- ventral expansion	C 1, 2, 3 & 4 joined	D 3 & 4 or 2 & 4 joined	E 4 only joined	Normal
No.	4	0	7	2	10	7
%	13.3	0	23.3	6.7	33.3	23.3

Less than a quarter were normal, although in the first instance over half appeared so. In other samples the numbers of A, B, C & D were higher and it may be that the records of very creamy larvae (Walker, 1904) were in fact the odd normal larvae among a very high percentage of melanic forms. A typical category B larvae is shown in Fig. 2. Here the black areas have expanded dorso-ventrally to almost obliterate the cream ground colour.

All the adults from these larvae were normal and matings produced a very high percentage of larvae which showed some degree of melanism. This indicates that this melanism is a Mendelian dominant character confined to the larva. Melanism is, of course, also found in adult *A. grossulariata* but this is a separate phenomenon.

Acknowledgements

I would like to thank Mr. H. Pattison who collected the material which provided the greater part of the data for this article and Dr. B. J. Selman for reading the manuscript.

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Nigerian Tineidae—Including Two Species New to Science and Four Species New To Nigeria

By K. P. BLAND

63 Charterhall Grove, Edinburgh, EH9 3HT

A small accumulation of microlepidoptera collected at light in Nigeria contained only eleven species of Tineidae, but four

of these proved to be new records for Nigeria and another two were new to science. Most of the specimens were collected on the campus of the University of Ibadan in the Western State of Nigeria. The species represented were: —

Monopis hypopiasta Meyrick 1931

1 ♂ Ibadan 23.XII. 1971 K. P. Bland. Only the second known exemplar of this species which was described from a single male from Cameroon. Unfortunately this specimen was extensively damaged and the genitalia preparation (Slide No. B134) lost in the post. I am indebted to Dr. L. A. Gozmány of the Hungarian Natural History Museum, Budapest for identifying this specimen.

Monopis spec. nov. (non descrip.)

1 ♀ Ibadan 15.I.1972 K. P. Bland, Genitalia Slide No. B211. Specimen is too worn to be described fully.

♀ Alar expanse 8mm. Head mixed pale greyish-buff and fuscous, especially peripherally. Antennae dark fuscous with basal part of segments greyish. Forewings greyish-white with a brassy sheen, irrorated with fuscous especially around basal half of costa and around apex. Hyaline spot elongate-oval with a tendency to constrict medially. Many of cilia spatulate with fuscous tips. Hindwings greyish with a bronzy sheen. Cilia paler.

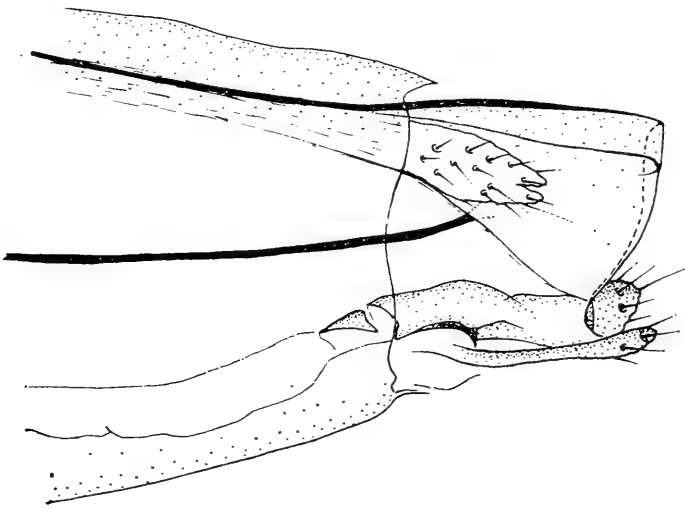


Figure 1. *Monopis* spec. nov. ♀. Lateral view of genitalia with ovipositor retracted.

♀ genitalia (Figure 1); Subgenital plates moderately incised to introitus and with apical setae. Ductus sclerotized initially, followed by a small triangular sclerotized segment; rest of ductus long, simple and membranous. Bursa copulatrix cylindrical, without signa and situated at extreme anterior end of abdomen.

Although the structure of the genitalia suggests the genus *Crypsithyris* Meyrick 1907, all the veins in the forewings, except the anal veins, are unstalked.

Silosca licziae Gozmány 1967

1 ♀ Ibadan 15.II.1962 H. J. Sutton, Genitalia Slide No. B171. Easily distinguished from the closely related *S. mariae* Gozmány 1965 by the strong brassy sheen on the hindwings. Previously only recorded from Sierra Leone, Ghana, Ivory Coast, Congo and Uganda.

Setomorpha rutella Zeller 1852 (see Corbet & Tams (1943) for synonyms)

1 ♂ + 1 ♀ Ibadan 9.I.1972 and 28.XII.1971 K. P. Bland, Genitalia Slides No. B164 and B210. This species has previously been recorded from Nigeria and most other countries of Africa. It is frequently referred to as the Tropical Tobacco Moth.

Perissomastix breviberbis (Meyrick 1933) = *melanocephala* (Meyrick 1933) = *temptatrix* Gozmány 1967

1 ♂ Ibadan 24.I.1972 K. P. Bland, Genitalia Slide No. B159 (see Figure 2a). This species has previously only been recorded from Central African Republic, Congo and Kenya.

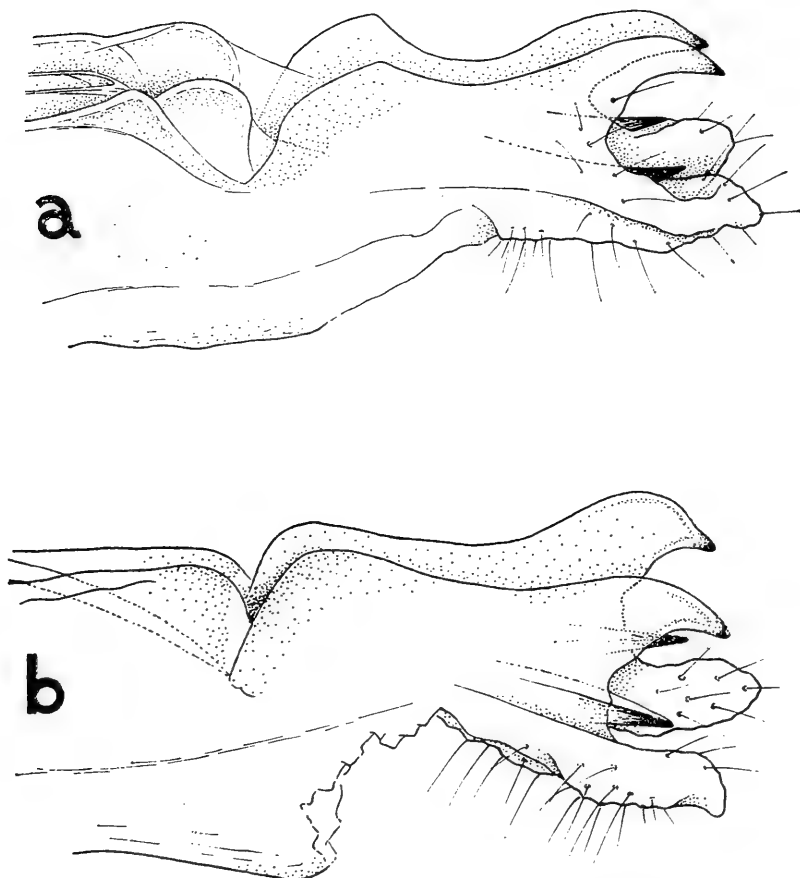


Figure 2. Lateral view of uncus of *Perissomastix breviberbis* (Meyrick 1933) (figure 2a) and *P. similatrix* Gozmány 1968 (figure 2b).

Perissomastix similatrix Gozmány 1968

1 ♂ Ile-Ife 15.VII.1970 J. T. Medler, Genitalia Slide No. B135 (Bland) (see Figure 2b). This species was described from Nigeria but the present specimen lacks any rufous tinge to the head or labial palpi.

Following Gozmány and Vári (1973), I have identified this and the previous specimen as separate species and illustrated the uncus in both cases. I do however feel that future specimens from West Africa will show the above two species to consist of a single rather variable species. I make this suggestion because:

(i) The depth of the uncus just caudal to the joint in the uncus depends on the configuration of the thin ventro-lateral membrane of the uncus and varies with whether the uncus is partially extended (as in Figure 2a), or retracted (as in Figure 2b).

(ii) The genital characters in both these specimens do not correspond exactly with those quoted by Gozmány and Vári (1973) for the respective species.

Ectabola fuscopilleata spec. nov.

♂ Alar expanse 10mm. Head, labial palpi and forelegs (except for posterior aspect of femur) very dark brown. Antennae thick, infuscated at base then shining pale ochreous-greyish. Base and leading edge of tegulae dark brown, remainder pale ochreous-yellowish. Sides of thorax pale ochreous-yellow. Middle- and hindlegs pale ochreous, heavily suffused with dark brown scales; posterior aspect of hind tibiae with a dense tuft of very pale ochreous hair-scales. Forewings sublanceolate and pointed, with veins R^{4+5} stalked. Colour of forewings sericeous, but shining, pale ochreous-yellowish; base of costa infuscated to $\frac{1}{3}$; no pattern. Cilia concolorous. Hindwings sublanceolate and pointed with no veins stalked. Colour of hindwings pearly buff; cilia concolorous with forewings.

♂ genitalia (Figure 3a & 3b): Uncus lobes fused dorsally and apically; uncus stout, with apex curved downwards; a dorsal patch of fine hairs towards tip and lateral aspect of uncus with stout spines; tip of uncus blunt with a transverse indentation so as to form a ventral lobe, which is somewhat bisected medially, and a slightly more pronounced, rounded dorsal lobe. Uncus lobes not fused ventrally towards base; a dense tuft of cephalicly-pointing fine hair on each side of base of uncus, projecting from this ventral aperture between the uncus lobes. Valvae rounded at tips; moderately hairy; four times as long as wide; ventral margin almost straight; dorsal margin with slight concavity in apical half. Aedaeagus boat-shaped in cross-section with dorsal aspect open. Dorsal and ventral margins of aedaeagus tapering towards each other caudally; ventral margin bending obtusely towards dorsal at caudal end. Vesica capped apically with an unusually shaped sclerotized structure—shaped like a double “bow-wave”.

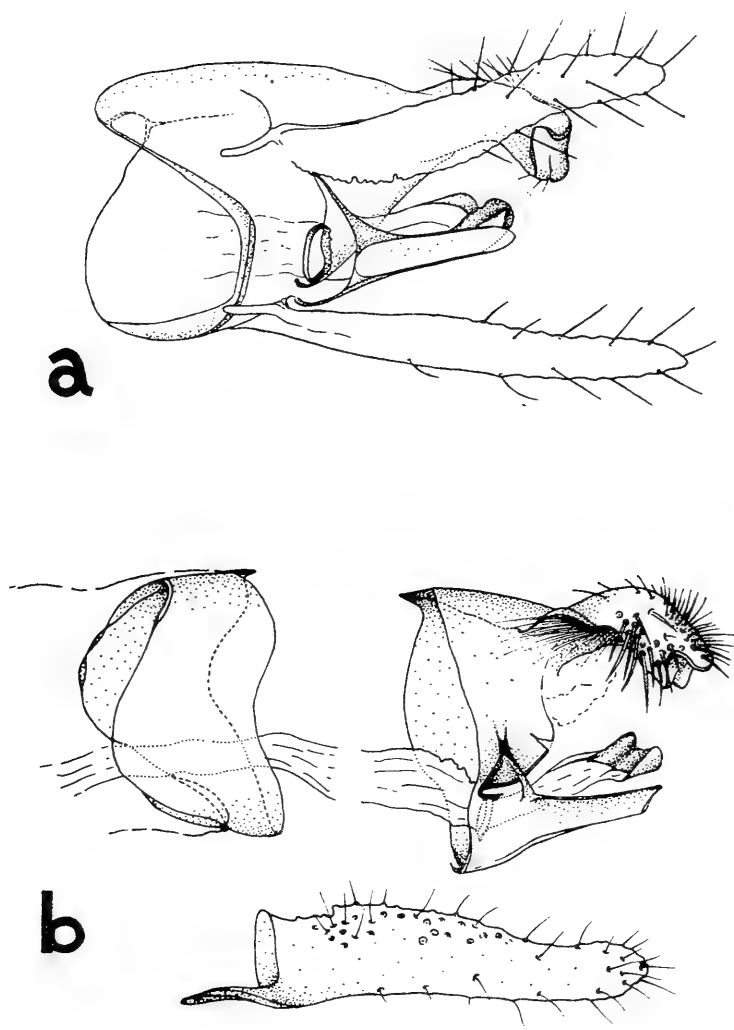


Figure 3. Genitalia of *Ectabola fuscopilleata* spec. nov. ♂. Figure 3a: Ventro-lateral view of genitalia—the true structure of the aedeagus was not apparent from this angle. Figure 3b: Genitalia remounted and dissected out. Only the left valva is illustrated.

Female and substrate of larva unknown.

A single male taken at light at Ibadan University, W. Nigeria on 28th December, 1971 (K. P. Bland). Genitalia Slide No. B149. Holotype to be deposited in the British Museum (Natural History), London.

Externally very similar to *E. pygmina* (Gozmány 1965). Shape of the uncus differs markedly from that of *E. pygmina* and *E. perversa* (Gozmány 1967) but is similar to that of *E. laxata* (Gozmány 1967), from which species it can be separated by the more slender valvae and different shaped aedeagus. It can be separated from all its congenitors by the shape of the excrescence on the end of the extruded vesica.

Episcardia phlegethon Gozmány 1968

1 ♂ Ibadan 24.VII.1961 H. J. Sutton, Genitalia Slide No. B172 (Bland). The male holotype was collected in Northern Nigeria by J. Simpson in 1910. Also recorded from Malawi and Tanzania.

Syncalipsis typhodes (Meyrick 1917)

2 ♂ Ibadan 15 & 16.V.1958 H. J. Sutton. 8 ♂ Ibadan 14.X.1971 - 21.I.1972 K. P. Bland. 1 ♂ Serti, N.E. State 30.III.1970 J. T. Medler. 1 ♀ Ile-Ife 9.IX.1971 J. T. Medler. 2 ♀ Ibadan 20 & 24.X.1971 K. P. Bland. Genitalia Slides No. B119A, B119B & B120. This species has been previously recorded from Nigeria, Dahomey, Ivory Coast and Ghana.

Scalidomia fetalis (Meyrick 1917) = *endroedyi* Gozmány 1965 = *corrigata* Gozmány 1967 = *spinignatha* Gozmány 1968 partim

Thirteen specimens all collected at the University of Ibadan, Nigeria by H. J. Sutton; 4 ♂ 11.V.1958, 18.XI.1958, 26.XII.1958 (2); 2 ♀ 15.V.1958, 26.XII.1958; 7 ♀ 9.X.1958, 26.XI.1958 (3), 27.IX.1960 (3). Genitalia Slides No. B141, B154, B155, B169, B173, B207, B208 & B209 (Bland). In the last 7 females above the scrobiculated area on the last tergite agrees most nearly to specimens described as *S. corrigata* Gozmány 1967, while the other two females agree with those of *S. fetalis* (Meyrick 1917). The "*corrigata*"-like females also tend to be larger (22-27mm.) than the other females (18-22mm.). Specimens caught in November and December are darker than the others.

Not previously recorded from Nigeria although it has been taken in Dahomey, Guinea, Ivory Coast, Mali, Ghana, Cameroon, Congo, Uganda, Rwanda, Rhodesia, Urundi and the Comores Islands.

Tiquadra cultrifera Meyrick 1914

1 ♂ + 1 ♀ Ibadan 20.XII.1971 and 15.X.1971 K. P. Bland. 1 ♀ Ibadan 13.XI.1958 H. J. Sutton. Genitalia Slides No. B118 and B170 (Bland). This species has previously been recorded from Nigeria, Ghana and the Congo.

I am grateful to Professor J. T. Medler and Mr. A. Oboite for the opportunity to examine some of their Tineid material. Specimens collected by H. J. Sutton are in the University of Ibadan Entomological Collection, the remaining specimens are to be deposited with the British Museum (Natural History), London and the University of Ibadan.

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A Key to the Subfamilies of Phasmida

By J. T. CLARK

The Chestnuts, 30 Leicester Road, Uppingham,
Rutland, LE15 9SD

With the increasing interest, particularly amongst amateurs, in the insects of the order Phasmida (stick and leaf insects) it seems timely to make available a key to the main subgroups. No such key has been published in English, but several have appeared in German. The key given below is taken without modification from Beier (1968), selected because it is the most recent full key to the order.

Key to Families

1. On the underside of the end of the tibiae is an approximately triangular, more or less depressed and sharply defined region, the apical area (see Fig. 1) Phylliidae
- Tibiae lacking such a region Phasmatidae

Key to Phylliidae

1. Not strikingly leaflike; abdomen with at the most small side lobes and not appearing strongly compressed; antennae not noticeably sexually dimorphic 2
- Strikingly leaflike; abdomen with large side lobes and appearing strongly compressed; femora and often also the tibiae lobed; male antennae long and bristled; female antennae scarcely as long as the head; male elytra scarcely as long as the thorax; female elytra almost cover the entire abdomen Phylliinae
2. Tarsi 5-jointed 3
- Tarsi 3-jointed; small; wingless; confined to California Timeminae
3. Apical areas of the four hind tibiae never extended into spines; femora sometimes quadrangular in section, but not regularly spined; mesonotum at least as long as the metanotum; wings or wing rudiments mostly present ... 4
- Apical areas of the four hind tibiae often extended into spines, in which case the body has wing rudiments and the femora are almost always quadrangular and regularly strongly spined; alternatively the mesonotum is significantly shorter than the metanotum with wings absent 6
4. The underside of the claws without fine comblike serrations; elytra, if present, never scalelike 5
- The underside of the claws with fine comblike serrations; elytra, if present, small, scalelike and pointed Aschiphasmatinae

5. Femora indistinctly quadrangular, without a mid ventral keel, and not spiny; fore femora not compressed at the base; ocelli always absent; antennae very thin, as long as the body, indistinctly jointed Korinninae
Femora usually distinctly quadrangular and with a distinct, often spiny, mid ventral keel, or the fore femora distinctly compressed, especially basally; if the femora are without a keel then ocelli or wings are present Pseudophasmatinae
6. Antennae distinctly longer than the fore femora; winged or wingless 7
Antennae shorter than the fore femora (except *Xylica*); always wingless Bacillinae
7. Wingless; prosternum never with rough double humps; apical area always without spines Pygirhynchinae
If completely wingless, then the prosternum has a rough double hump and the apical area lacks spines; when winged or with wing rudiments the apical area always has small spines Heteropteryginae

Key to Phasmatidae

1. Antennae powerful and distinctly jointed, usually shorter than the fore femora but never as long as the body; in those with long antennae the ventral keel of the four rear femora is distinctly and evenly serrated or toothed and the animals are winged, or their mesonotum is at least as long as the metanotum 2
Antennae threadlike and indistinctly jointed, especially beyond the middle, longer than the fore femora, often body length; ventral keel of the four rear femora not evenly serrated, usually only with a few distal teeth or completely unarmed; wingless, mostly thin, sticklike animals 9
2. Antennae either longer than the fore femora, or those of the female at least distinctly serrated dorsobasally; wings or wing rudiments present or absent 3
Antennae distinctly shorter than the fore femora; ventral edge of all femora smooth; sticklike or sturdy animals, if sturdy rather small and mostly smooth; male terminal segment not cleft or drawn out into lobes Pachymorphinae
3. Fore femora distinctly quadrangular and serrated on the dorsal edge, or rarely 3-edged and then completely smooth (exceptions occur in some of the wingless Phibalosomatinae) 4
Fore femora 3-edged, at least dorsobasally serrated; wings or wing rudiments exist, or alternatively the mesonotum is longer than the metanotum (some Indian forms with dorsobasally smooth fore femora and a short mesonotum have the terminal segment of the male cleft and drawn out into two lobes) Phasmatinae

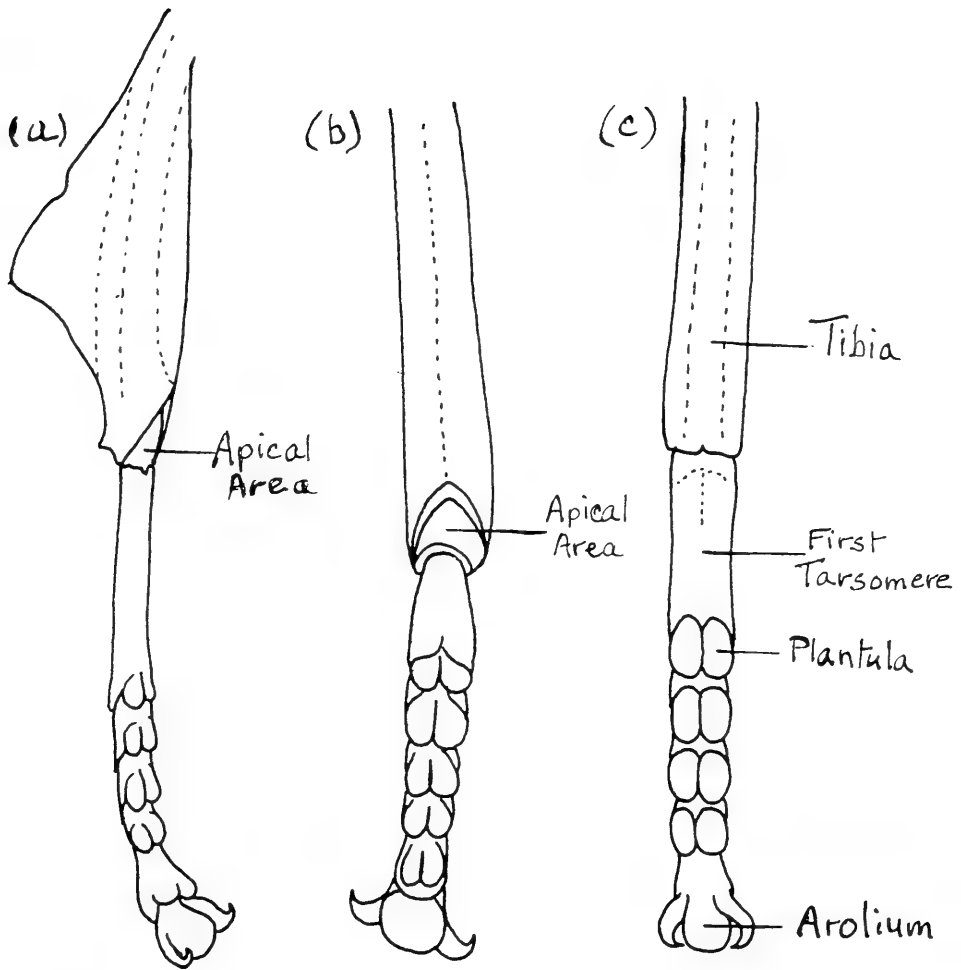


Figure 1: Undersides of the ends of the middle legs of (a) *Phyllium*, Phyllidae; (b) *Anismorpha*, Phyllidae; (c) *Carausius*, Phasmatidae, to show the location of the apical area.

4. Old World forms, predominantly from the Indo-Australian area 5
 New World forms (one genus in Madagascar); female genital operculum more or less extended and protruding from the end of the abdomen Phibalosomatinae
5. Female operculum and supraanal plate do not form a beak-shaped ovipositor; hind femora of the male never noticeably thickened and spined 6
 Female operculum and supraanal plate form a beak-shaped ovipositor; hind femora of the male often noticeably thickened and strongly spined Eurycanthinae
6. Ventrolateral edge of the mid and hind femora finely serrated, finely toothed or smooth; base of the fore femora not compressed 7
 Femora at least partly edged with blunt teeth or lobes; fore femora often distinctly compressed Xeroderinae

7. Gena not broader than an eye; elytra and wings usually well developed, the former relatively long, slender, oval, and only weakly curved 8
 Gena broader than an eye; elytra and often also the wings short or absent Platycraninae
8. Head without lobes; forms from Australia, New Guinea and Madagascar Podacanthinae
 Head with two parietal lobes; forms from Central and South Africa Palophinae
9. Wingless (except *Phantasca*); mesonotum almost always shorter than the metanotum 10
 Winged or with distinct wing rudiments; if wingless then the mesonotum is longer than the metanotum, or at least the terminal segment of the male is not cleft and the female has no beak-shaped ovipositor Necrosciinae
10. Male terminal segment never cleft and extended into lobes Heteronemiinae
 Male terminal segment cleft and extended into two lobes, which narrow in side view towards the rear, or at least have two finger-shaped curved medioventral processes Lonchodinae

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Lepidoptera on Hoy, Orkney

By GUY HOWARD

1 Brackenview, Mill Hill Road, Barnes, London, S.W.13

In July 1973, accompanied by my wife, I returned to Hoy to try to add to the list of Lepidoptera on the island. A visit in June 1969 had resulted in several new Orkney records and in particular substantiated the suggestion by Mr. Ian Lorimer that Berriedale, in the hilly north part of the island, was likely to be of special interest.

On this occasion we rented a cottage at Saltness in the south of Hoy. We had a car and there is an adequate road up the east side with a branch westward to Rackwick in the north. We stayed from 21st July to 1st August. The weather was initially fairly sunny but deteriorated around the 26th, with a change to a northerly wind and colder conditions. Forty-three species of Macrolepidoptera were identified. Of these a number were confirmations of 19th century records. Among them was *Eupithecia goosensiata* Mab. which had hitherto seemed of dubious occurrence. *Tethea duplaris* L. is new to the Orkney list although it is known from the Shetlands. A thorough search was made for *Lycaena phlaeas* L. as South records the insect

on Hoy from 1895 and it occurs in Caithness at the present time. However none was observed.

The following is a list of the insects seen:

Pieris brassicae L., a few. *Polyommatus icarus* Rott., common, flying over sunny grassy banks by the beach at Saltness, Rackwick and Orgill; they often flew together with the next species. *Maniola jurtina* L. *Coenonympha tullia* Müll., a few worn examples at Rackwick. *Hepialus humuli* L., 1 typical male, Melsetter, 27.VII. *H. fusconebulosa* Deg., Melsetter—2 at m.v. light. Berriedale—common around 10.30 p.m. *Tethea duplaris* L., Berriedale—fairly frequent at m.v. light on 24.VII and 29.VII. *Xanthorhoe munitata* Hübn., common in fields at Saltness at dusk. *X. montanata* Schiff., taken at dusk at Saltness and at m.v. light in Berriedale; common. *Epirrhoe alternata* Müll. *Entephria caesiata* Schiff., widespread on moorland. *Eulithis populata* L., Berriedale. *Chloroclysta truncata* Hufn., common. *Colostygia pectinataria* Knoch, Berriedale. *Hydriomena furcata* Thunb., common at m.v. light in Berriedale; very variable, ranging from a yellow ground colour to dark red-brown and melanic examples. *Perizoma didymata* L., Saltness. *Eupithecia nanata angusta* Prout., taken at m.v. light in Berriedale and on the moor above Saltness. *E. goosensiata* Mab., fairly frequent at m.v. light in Berriedale. *Campaea margaritata* L., common at Berriedale; also seen at dusk at Melsetter. *Opisthographis luteolata* L., Melsetter and Berriedale. *Euxoa tritici* L., common at m.v. light at Sands Geo S.W. of Melsetter on 30.VII from midnight. *Rhyacia simulans* Hufn., 1 taken on moor above Saltness, which has dark forewings and smokey hindwings. *Standfussiana lucerneae* L., common on moor above Saltness; all of moderately dark colouration. *Noctua pronuba* L. *Lycophotia porphyrea* Schiff., very common. *Diarsia brunnea* Schiff., taken at Saltness; also common and very fresh at m.v. light in Berriedale on 24.VII. *D. rubi* View., common at Berriedale and Melsetter. *Xestia c-nigrum* L., 1 taken at m.v. light at Sands Geo. *X. xanthographa* Schiff., 1 taken at m.v. light at Melsetter. *X. baja* Schiff., a few taken at m.v. light at Melsetter and Berriedale. *Hadena conspersa* Schiff., 1 taken at m.v. light, Berriedale; larvae common on *Silene maritima* in Geos, S.W. of Melsetter. *Cerapteryx graminis* L., taken at Melsetter. *Mythimna impura* Hübn., flying at dusk at Saltness; very common at Sands Geo. *Blepharita adusta* Esper. *Apamea monoglypha* Hufn., very common at m.v. light on the moor at Saltness; considerable variation in the depth of brown with many markedly melanic. *A. crenata* Hufn., taken at Saltness at dusk. *A. remissa* Hübn., 1 taken at m.v. light, Melsetter. *Oligia fasciuncula* Haw., common at m.v. light and also at *Senecio* flowers. *Plusia chrysitis* L., flying at Saltness at dusk. *Chrysospidea festucae* L., 1 at m.v. light, Sands Geo, 30.VII. *Autographa pulchrina* Hübn., at m.v. light at Melsetter and Berriedale. *Abrostola triplasia* L., 1 taken at m.v. light at Melsetter and 1 on the moor at Saltness. *Hypena proboscidalis* L., Melsetter.

Acknowledgements

I am grateful to Mr. Ian Lorimer for help in identifying certain of these insects. I also thank Mr. E. C. Pelham-Clinton for identifying the specimens of *Eupithecia goosensiata*.

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Dimorphism in *Papilio* Pupae

By D. G. SEVASTOPULO, F.R.E.S.

c/o Reynolds & Co., P.O. Box 95026, Mombasa, Kenya

(concluded from Vol. 86, p. 272)

analysis of the pupal colours in these:—

	Green	Brown	Pink
<i>P. polytes</i>	105	52	—
<i>P. demoleus</i>	105	13	6

In these figures I have not differentiated between the various shades of brown pupae, darker, paler or containing a certain amount of green, etc., but I have recorded the pink form of *demoleus* separately, a form which it shares with *demodocus* but is not found in *polytes*.

Finally, a short while ago, I received through the kindness of Professor Clarke a copy of a paper (West, Snellings & Herbek, 1972) describing experiments with the American *P. polyxenes asterius* Stoll., establishing a definite relationship between the day/night ratio and the colour of the pupa, long day/short night (i.e. non-diapausing) pupae being mostly green and short day/long night (i.e. overwintering) pupae being brown, regardless of background, but non-diapausing pupae showed a certain flexibility, the colour being affected by the colour of the background and the light reaching the ventral surface of the pharate pupa. It was also noted that, whilst diapausing pupae were very uniform in tint, there was considerable difference in the shade of brown in non-diapausing pupae.

It is not, I think, unreasonable to assume that:—

1. The chemical difference between the green and brown forms of all dimorphic *Papilio* pupae is the absence or presence of melanin, and,
2. That the production of the melanin is triggered off by Hidaka's hormone.

The question to determine is what is the stimulus required to activate the various ganglions and produce the hormone.

Clarke & Sheppard found no indication of a genetical factor when working with *polytes*, but I cannot help feeling that a situation in which there were three genotypes, a definite green, a definite brown and an optional green/brown, would be almost impossible to detect statistically. A definite green or brown pupa, controlled genetically, could be a serious dis-

advantage to a species if the inherited colour was not combined with an inherited preference for suitable pupating sites.

It is difficult to see how the day/night ratio can affect tropical species, where there is very little difference in length between the longest and the shortest day. Diapause seems to be quite haphazard in tropical *Papilio* species and, seeing that most species feed on evergreen trees and shrubs, the value of a brown diapausing pupa is much reduced.

In my *demodocus* experiment, all factors were constant, except the actual nature of the surface on which the pupa was formed. The colour was the same, whether rough or smooth, and the pupating jar was in virtual darkness in a closed wooden box. There was, however, a complete absence of green pupae from larvae that had been reared in more or less crowded conditions. If movement does tend to produce brown pupae, it would provide an explanation for what Clarke & Sheppard term "mistakes", i.e. mismatched pupae, as these could be explained by a larva that had travelled a long distance, and still finished up among leaves and produced a brown pupa, or one that had only wandered a short way and finished up on a tree trunk and produced a green pupa. It is possible that larvae that produce over-wintering pupae in temperate zones travel further than the summer larvae which are not going to produce diapausing pupae.

West, in a personal communication, has suggested that the stimulus may vary from species to species, and even between different populations of the same species, but attractive as this suggestion may appear, I am reluctant to accept it.

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Notes on the Status of *Troides hypolitus*
(Cramer) 1775 (Lep.: Papilionidae: Troidini)
with a Description of a New Genus, Notes on
the Status of *T. hypolitus cellularis* Rothschild
1895, and the Apparent Dimorphi in the Male
Sex of *T. hypolitus sulaenis* Staudinger 1895

By JAN HAUGUM, F.R.E.S.

Lundhusvej 33, 7100 Vejle, Denmark

and ANDREW M. LOW, F.R.E.S.

Colne Mead, Mill Road, West Drayton, Middlesex

The peculiar species *Troides hypolitus* Cramer stands, due to its numerous specialised characters, in an isolated position amongst the Birdwing Butterflies in the east. In spite of a superficial resemblance to the genus *Troides* Hübner, we have found that it has strong affinities to *Trogonoptera* Rippon. Our observations in this respect agree well with those of Zeuner 1943, who remarked upon the equally isolated positions of *hypolitus* and *Trogonoptera*, and who expressed some dissatisfaction over the position of *hypolitus* in the genus *Troides* Hübn. We find that the characters of *hypolitus*, though distinct, are in some ways intermediate between *Troides* and *Trogonoptera*, thus partially bridging the gap between these genera. The large number of distinct and highly specialised characters of *T. hypolitus* necessitates and justifies its elevation to generic status. The natural arrangement of the Birdwing genera is then as follows:

1. *Ornithoptera* subgen. *Ætheoptera* Rippon 1894
Boisduval 1832 subgen. *Ornithoptera* Boisduval 1832
subgen. *Schoenbergia* Pagenstecher 1893
2. *Trogonoptera* Rippon 1889
3. *Ripponia*, monobasic gen. nov. with type species *hypolitus* Cram. 1775
4. *Troides* Hübner 1819

It is apparent that the genera *Trogonoptera*, *Ripponia* and *Troides* have stronger affinities respectively than do *Ornithoptera* and *Trogonoptera*, though *Trogonoptera* also exhibits melanism and iridescent scaling. It is also apparent that the *Trogonoptera* and *Ripponia* are much more specialised than *Troides*. The geographical distribution of these genera is particularly interesting in this respect. There is an overlap of *Ornithoptera* and *Ripponia* in the Moluccas, while *Troides* overlaps geographically with both *Trogonoptera* and *Ripponia* throughout their ranges. Thus *Trogonoptera* and *Ripponia* are true allopatric genera with distributions extending respectively in the following areas:—

(1) *Trogonoptera*. Areas in the Malay Peninsula: Sumatra, Simeulue, Riow Lingga. Natuna Group: Borneo, Balabac, Palawan.

(2) *Ripponia*. Talaut Group: Banggai, Sulawesi (Celebes). Sula Group: Saparoea, Ambon, Buru, Ceran, Helmaheira, Morty.

The geographical distribution (with *Trogonoptera* peculiar to the Malay area and *Ripponia* replacing it in Celebes (Sulawesi) and the adjacent Moluccan islands to the east) does appear to support Zeuner's theory that they are descendants of the same ancestral stock, having both later independently acquired different modifications and specialisations—such as the melanistic characters and iridescent wing-scaling of *Trogonoptera*, and the satiny white scaling and modified flight of *Ripponia*.

The characters that distinguish *Ripponia* from the allied genera are as follows: (1) Specialised characters of venation (vein 8 of hindwing shorter than half the length of wing (fig. 1a): vein

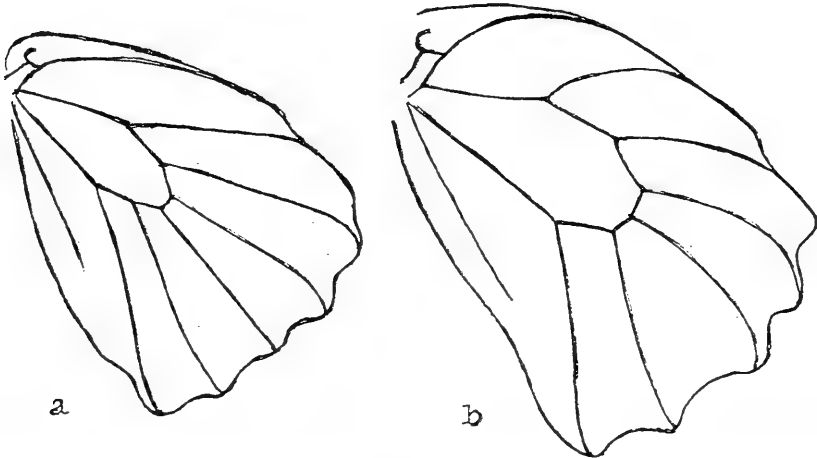
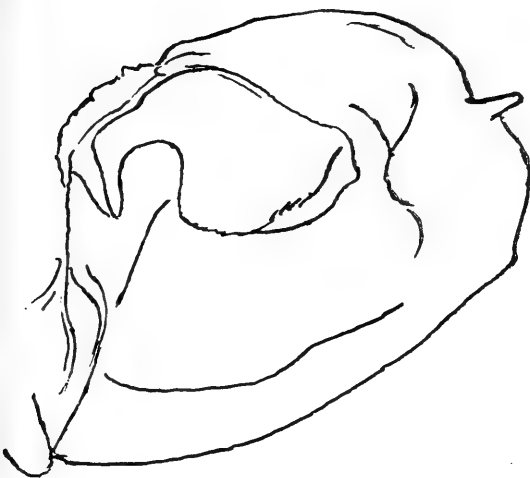


Figure 1: Simplified diagram of venation of male hindwing: (a) *Troides helena cerberus*, N. India. (b) *Ripponia* (*Troides*) *hypolitus hypolitus*, Ambon.

7 rising very steeply to the costal margin in a regular curve). (2) Specialised characters of scaling and pattern (male hindwing with a discal row of spots present: male/female hindwing without golden scaling inside cell: the golden scaling restricted to a row of submarginal spots) (for the scaling, see below). (3) Specialised characters of abdominal pattern and colouration (see below). (4) Genitalia of male sex (very distinct and only vaguely reminiscent of *Trogonoptera*: it has no resemblance to the *Troides* genitalia, and only a vague superficial resemblance to the genitalia of certain primitive forms of *Ornithoptera*) (figs. 2a, 2b, 2c). (5) Modifications of the dorsal fold in male, and of dorsal margin in female. These structures are described below. (6) Modifications of sexual dimorphism. (7) Structures of early stages (the dark larva differs somewhat from *Troides* larvae: a detailed description of the early stages was published by Straatman (1968). The pinkish-grey pupa differs from *Troides* pupae in colouration and markings, in having broadened wing-cases, and in having the dorsal abdominal processes bent). (8) Adapted mode of flight. (9) Geographical distribution.

The male abdomen of *hypolitus* is usually described as being a strong or dark yellow (Boisduval (1836), Rothschild (1895), Fickert (1889), Rippon (1906), Jordon (1927), etc.). As



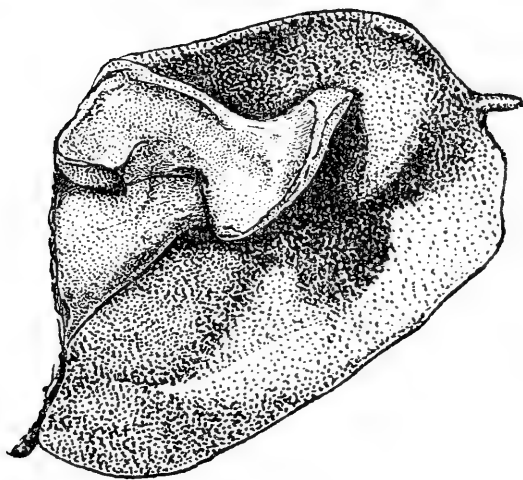
5 mm.

Figure 2a: *R. (T.) hypolitus hypolitus* ♂ genitalia. Right clasper. Amboyna. Coll. P. Blandin. No. PB0102.



5 mm.

Figure 2b: *R. (T.) hypolitus cellularis* ♂ genitalia. Right clasper. South Celebes. Coll. P. Blandin. No. PB0103.

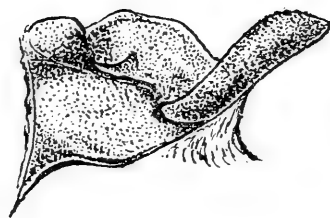


5 mm.

Figure 2(c): *R. (T.) hypolitus cellularis* ♂ genitalia.

Right clasper, oblique ventral view of harp.

S. Macassar distr., Celebes. Coll. J. Haugum. No. 8.



far as we know, only Staudinger (1888) and Zeuner (1943), have described it correctly as being "striking reddish-orange coloured on segments 3, 4, 6 and 7". The colour is, in fact, orange dorsally, but yellow laterally, becoming whitish ventrally in the fresh specimens examined by us (Macassar distr. 1973-74), but is often a darker, reddish-orange dorsally in museum material. Whether this latter coloration is a natural individual variation, or owing to alteration in the pigments due to age we are at present unable to say. We hope to discuss the significance of the modified black abdominal pattern in the male of *Ripponia* and *Troides* at a later date.

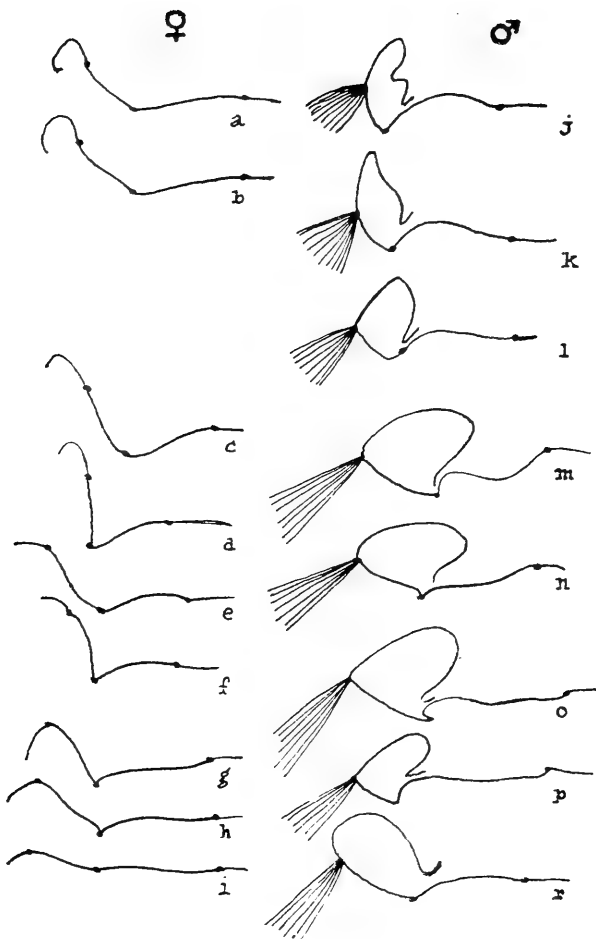


Figure 3: Dorsal fold of ♂ HW, and dorsal margin of ♀ HW in *hypolitus*, *Trogonoptera* and *Troides*. Section-cut through central part.

<i>Ripponia</i>	<div><div>a. <i>hypolitus</i> ♀, Celebes</div><div>b. <i>hypolitus</i> ♀, Celebes</div></div>	<i>Ripponia</i>	<div><div>j. <i>hypolitus</i> ♂, Celebes</div><div>k. <i>hypolitus</i> ♂, Ambon</div><div>l. <i>hypolitus</i> ♂, Celebes</div></div>
<i>Trogonoptera</i>	<div><div>c. <i>trojana</i> ♀, Palawan</div><div>d. <i>trojana</i> ♀, Palawan</div><div>e. <i>brookiana albescens</i> ♀, Malay Peinsula</div><div>f. <i>brookiana albescens</i> ♀, Malay Peninsula</div><div>g. <i>amphrysus ruficollis</i> ♀, Perak</div><div>h. <i>amphrysus ruficollis</i> ♀, Perak</div></div>	<i>Trogonoptera</i>	<div><div>m. <i>trojana</i> ♂, Palawan</div><div>n. <i>brookiana trogon</i> ♂, Sumatra</div></div>
<i>Troides</i>	<div><div>i. <i>haliphon haliphon</i> ♀, Celebes</div></div>	<i>Troides</i>	<div><div>o. <i>mirandus mirandus</i> ♂, Sabah</div><div>p. <i>darsius</i> ♂, Celebes</div><div>r. <i>oblongomaculatus papuensis</i> ♂, New Guinea</div></div>

The scent-organ or anal pouch of the male hindwing in *hypolitus* is of the type generally found in *Troides*. Little attention has been given to this structure (which was described by Rippon in 1906), except by Zeuner (1943). The dorsal fold, covering the scent-scales within the anal pouch, is complete, that is recurved over the wing, the outermost portion is abruptly recurved so to close tightly in position when the scent-organ is not operated. In some specimens the outer portion of the folded-over flap has a double curve and recurve at the edge. The edge of the flap is not interlocking with a fold or groove in the wing as in *Trogonoptera*, nor does it have the narrow groove in the wing-membrane close to vein 1 which is found in at least some *Troides*: in *hypolitus* a tight enclosure of the scent is provided by that part of the membrane which supports vein 1 being angularly reset (or curved) and bent, this structure forming a minute step in the plane of the wing (it appears that this structure is somewhat individually variable in *hypolitus*, as the "step" is angular in some males, while a regular curve is found in others, the latter condition being illustrated in the figure. It is often difficult to establish the normal position of the various dorsal folds and anal pouches in the Birdwings from examination of museum material, as these structures are frequently somewhat distorted in shape during the setting and drying processes, the above considerations being therefore based in all essentials upon recent, unset material). The actual angle, at which the fold itself is set, varies from that of *Troides*. The enclosure formed by the fold is somewhat narrower and higher than in *Troides*. The anal brush is long and dark, nearly black. Female *hypolitus* with a downturned (negative) "fold" at dorsal margin of hindwing, this fold is sometimes recurved and is unlike that of *Trogonoptera*. The actual margin of this area is constantly slightly recurved in the specimens examined for this character: this modification is not present in any *Trogonoptera* females examined for this character, but may be present to a less pronounced degree in some *Troides*, though generally absent.

The scaling of the male of *R. (T.) hypolitus*

The black scales of the disc of forewing have a dark greenish gloss: they are in shape short, ovate, non-dentated and blunt, intermingled with a smaller quantity of similarly shaped but dentate scales. In the marginal areas of wing only non-dentate scales present Jordan (1895) found that these scales are much less denticulate than those of *Troides*, and this agrees well with our observations. Black scales on the disc of forewing, inside cell, are ranging from ovoid, elongated shapes to broad ones with irregular, blunt dentations. The greyish-white scales of the pale vein-stripes of the forewing underside are ovoid, prominently tri-dentate, and larger than the scales of the upper-side: intermingled with these scales are some ovoid or irregular, transparent scales without pigmentation. These scales are prominently irregular in shape: a short "knob" is present on their stalk. The yellow scales of the hindwing ovoid, often widest

at base: the stalk is *reset* in the scale, not protruding basally. The plain white scales of the disc of the hindwing underside are bi- or tridentated, similar in shape to the greyish-white scales of the forewing vein-stripes, but smaller. In the area next to the dorsal fold the scales are either tridentate, or larger, bidentate. The scales of the dorsal fold (taken outside the upper edge) ovoid, bidentate, or irregularly tri- quadri- or multi-dentate, often asymmetrical in shape, with the teeth at apices long. The scales of the underside of dorsal fold prominently bidentate, variable in shape, often very slim with parallel sides, or being widest near base. Jordan, in the supplementary notes to Rothschild's Revision, remarks that the scales on the underside of the fold are broadest towards the base and irregularly produced at the apex in two very long teeth in *hypolitus* and in *Ornithoptera*, while these scales in *Troides amphrysus* and *T. helena* have partly three long teeth: in *Trogonoptera* most of these scales have three or four teeth. The apical teeth of the bidentate scales of the dorsal fold referred to above, are in some specimens extremely long and pointed: those scales bordering the edge of the fold very narrow. This appears to confirm Jordan's observations on the differences which are evident in the scaling of the dorsal area of the male hindwing in these related genera. Our observations also indicate that the differences in scaling are fairly constant, and may thus serve as a general aid in the classification of the Troidini genera.

The black scales of the *hypolitus* abdomen narrow, irregularly prolonged, ovoid, and often elongated and nearly hair-like with a smooth-tapering apex. Orange scales of abdomen irregularly ovoid, narrow, often more curved than the preceding, or irregularly bent. The tip of the black hairs of the dorsal fringe irregular.

Dimorphism in *R. (T.) hypolitus sulaensis* Staudinger, 1895

The geographical distribution of the little known subspecies *sulaensis* Staudinger comprises the islands of the Sula or Sula Group: Sula Besi (Sulla Sanana), Sula Mangoli, and probably Talibabu, although we have not seen a specimen from that island. Although the subspecies *sulaensis* is located geographically between the other subspecies of *hypolitus*, it is not intermediate in character. It is, apart from the consistent black abdominal markings, chiefly characterised by being dark and distinctly patterned in both sexes: in the male, by a very dentate hindwing, a pale suffusion along the forewing veins, and by the *presence of yellow scaling* bordering the discal veins, and a presence of such scaling *within the cell* on the hindwing underside. According to Staudinger, all whitish areas of the hindwing underside being more or less strongly yellow "flushed". This yellow scaling inside the hindwing cell has a strong tendency to follow the pseudoneuri.

It has been considered that the orange colour of the male abdomen is a consistent character in this species. There is, however, a tendency towards a darker, more reddish coloration in *hypolitus antiopa* and the nominate *hypolitus* as referred to

earlier. In subspecies *sulaensis*, a rare form occurs in which the orange colour is entirely replaced by a clear yellow, and a somewhat more frequent form in which the orange is entirely replaced by a greyish white colour. This modification is also accompanied by modification of scaling on the wings in the latter form.

Form **alboabdominalis** nov. ♂

Abdomen with orange colour replaced by creamy or greyish white. The yellow scaling on the disc of hindwing underside entirely absent. This form is thus lacking one of the most prominent characters of the subspecies to which it belongs. There is a short series in coll. Brit. Mus. (Nat. Hist.). Its status is unknown, but it may be found to be above that of an individual variation. Sula Besi and Sula Mangoli: Ufola.

Form **flavoabdominalis** nov. ♂

Abdomen yellow. Stands intermediated between the nominate f. *sulaensis* and the above. For the sake of convenience we apply a name to the single specimen known in which the abdomen is yellow. Status unknown. One male in coll. Brit. Mus. (Nat. Hist.).

For some time we were inclined to think it impossible to match any female specimens with the interesting forms enlisted above due to their variability. However, Mr. T. G. Howarth of the British Museum (Nat. Hist.) now informs us that it does seem possible to recognise the corresponding forms of this sex, which he enlists as follows: *flavoabdominalis* female: abdomen ochraceous to bistre. One specimen known. *Alboabdominalis* female: abdomen plain silvery grey, i.e. as in nominate *hypolitus* except for a complete absence of yellow scales. It furthermore differs from nominate *hypolitus* in having a paler and less vivid colour of the yellow areas of the hindwing. Locality as for the male form *alboabdominalis*.

On the Status of *R. (T.) hypolitus cellularis* Roths., 1895 (*celebensis* Stgr., 1895)

While preparing a Monograph of the Birdwing Butterflies we realised the need for a strict view of the numerous subspecies and forms hitherto described, because many of these have been named unnecessarily. We accordingly found it convenient to readapt the term *local form* (f. loc.) for designating local populations of a species or subspecies which in some way differ from the taxa to which it belongs, but which stands below a sub-specific level. Such forms are well known, especially in the *Ornithoptera*, and may, at least in some cases, be considered potential subspecies. It is in this way possible to sink a dubious subspecific name, but if one prefers so, to retain the name at the same time with the suffix f. loc.

We find in *hypolitus cellularis* Rothschild such local populations which differ in no important way from the nominate *hypolitus* (Cramer) of Ceram, nor from the sometimes darker *hypolitus* from Ambon (& Buru?). Those who may wish to apply a polynominal nomenclature may hereafter refer to the Celebean *hypolitus* as *hypolitus hypolitus* f. loc. *cellularis* Rothschild (Celebes). The whitish scales of the pale vein-stripes of the

forewing of both sexes are stated to be only sparingly present in the Celebean *hypolitus*. This is an individually variable character, and not valid for the diagnosis of a geographical subspecies. There are no appreciable differences in the males of the various populations, and Rothschild himself admitted that the males of nominate *hypolitus* and those of *cellularis* are practically indistinguishable. Some slight differences in the variable females is worth noticing: Celebean females tend to have less extended yellow scaling in the lower wing-areas of the upperside hindwing: lower part of the hindwing being purer white, dusted with dark scales, resulting in a grey appearance. In Ceram and Ambon females this area is often dusted with yellowish. This character is also individually variable. Celebean females are on average slightly smaller, and tend to have a darker and less yellow abdomen. Most markings are equally variable in Celebean and Ambon/Ceram specimens, and examples from either place, having no data of origin, may well be virtually impossible to identify. However, markings in which a somewhat more stable tendency of difference between the Celebean and Ambon/Ceram females, are evident in the abdominal patterns. In the abdomen of the female *hypolitus* there are two lateral rows of markings. In the females of *hypolitus* from Celebes there is a tendency towards diffusion of the upper row of spots, which are at the same time slightly enlarged. The Ceram females have the spots of the upper row small, but distinctly defined. The lower row of spots then, consists of spot which are small in the Celebean specimens but enlarged in Ambon/Ceram examples. However, none of the above enumerated differences are found in every specimen, and they do not support the hitherto subspecific status of the Celebean populations in our opinion. We therefore place the name *cellularis* Rothschild as a synonym of *hypolitus* (Cramer).

With regard to the geographical distribution of *hypolitus* (Cramer), the authors would welcome any supplementary information which may be forthcoming on its occurrence, especially on the islands Baru (from which one female specimen is recorded), Peleng and Banggai (between Celebes and the Sula group) and from the Sangihe-Talaut group, north of Celebes. It is likely that the records from these northern islands misled D'Abrera (1971), as he states that the distribution of *hypolitus* includes the Philippines. Notes or requests should be addressed to the first author.

Summary

The present status of *Troides hypolitus* (Cramer) is discussed: its standing as a species of the genus *Troides* is found unsatisfactory considering its distinct characters, some of which point to a relation with *Trogonoptera*. The male genitalia of *hypolitus* is found to be very distinct, having little or no similarity to the genitalia of *Troides*, being vaguely reminiscent of *Trogonoptera*. This species is therefore elevated to a generic rank, and the name *Ripponia* is proposed for the new genus. Various characters of *hypolitus* are discussed, and importance

is placed upon generic differentiation in scaling. *R. (T.) hypolitus cellularis* Rothschild is placed as a synonym of *hypolitus* (Cramer), and two new forms of *hypolitus sulaensis* are described.

Acknowledgements

We extend our sincerest gratitude to T. G. Howarth, B.E.M., F.R.E.S. of the British Museum for his kind assistance with our studies at that institution, and for improving and correcting this manuscript.

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First Records of Dragonflies (Odonata: Anisoptera) from Tripura (India)

By TRIDIB RANJAN MITRA

Department of Zoology, Calcutta University
and GOPAL CHANDRA SEN

The present note is based on a collection of specimens of dragonflies made by one of us (G.C.S.) in Agartala (Lat. 23° 15'N. and Long. 91° 15'E.) of Tripura, a state in Eastern India, during a short private visit in November 1970. Forty-two specimens belonging to seven species spread in five genera were collected. Though all the species are known to be cosmopolitan in distribution, it was considered worthwhile to publish a short note on this material since this is the first report on Odonata from Tripura.

All the species recorded here belong to the family Libellulidae, spread in four of its subfamilies. Five are old world species and one is known from both old and new worlds.

SYSTEMATIC ACCOUNT

Orthetrum sabina (Drury). 10♂♂, 3♀♀, Agartala, 6.xi.1970, coll. G. C. Sen. Recorded from almost all parts of India; also from Nepal, Somaliland, Mesopotamia, Persia to Samoa and Australia.

Orthetrum pruinatum neglectum (Rambur). 3♂♂, Agartala, 6.xi.1970, coll. G. C. Sen. The species is common in the plains and hills of India and extends to Tibet, Indochina and Hongkong.

Neurothemis tullia tulla (Drury). 6♂♂, Agartala, 5.xi.1970, coll. G. C. Sen. Common in almost all parts of India. Its extra-India distribution extends to Ceylon, Burma, Siam, Indochina, Malacca and Hongkong.

Neurothemis intermedia atlanta Ris. 2♀♀, 1♂, 6.xi.1970; 3♀♀, 1♂, 7.xi.1970; 1♀, ♂♂, 10.xi.1970; 2♀♀, 11.xi.1970, coll. G. C. Sen. This species is recorded from several places in peninsula India, Burma, Sikkim and Siam (Fraser, 1936). The length of abdomen of males is 18-19 mm. and that of hindwing 22-23 mm. of which Fraser (1936) is silent.

Brachythemis contaminata (Fab.). 2♂♂, Agartala, 4.xi.1970; 1♀, 5.xi.1970, coll. G. C. Sen. Excepting the Himalayas the species is recorded from all over India, also from Ceylon, Burma, Indochina, East China, Formosa, Philippines and southwards to Sumatra and Java.

Palpopleura sexmaculata sexmaculata (Fab.). 2♂♂, 1♀, Agartala, 10.xi.1970, coll. G. C. Sen. The species is reported from Southern, Western and Northern India, but only from Bengal, Assam and Tripura in Eastern India. Elsewhere recorded from Tibet, Malaysia, Indochina and China.

Pantala flavescens (Fab.). 1♀, Agartala, 4.xi.1970, coll. G. C. Sen. Reported from almost "whole of India, Ceylon, and Burma to as far north as Tibet" (Fraser, 1936). Borrer (1945) recorded it from North America. Mitra and Mukherjee (1967), Mitra (1974) reported its migratory flight in Calcutta.

Acknowledgements

The authors are thankful to Prof. D. N. Ganguly, Head of the Department of Zoology, Calcutta University, for facilities, to Dr. D. N. Ray Chaudhuri of the same department for guidance and to Shri A. R. Lahiri for some help.

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Addition and Correction

In Vol. 86, p. 234, add to end of postscript to J. Perceval's Butterflies of Majorca:

"found there before"

In Vol. 87, p. 31, beginning of line 5 from top should read:
"for both these species"

On a New Species of the Genus *Cranopygia* Burr (Dermaptera) from India

By G. K. SRIVASTAVA

Zoological Survey of India, Calcutta

Superfamily: PYGIDICRANOIDEA

Family: PYGIDICRANIDAE

Subfamily: PYGIDICRANINAE

Cranopygia angulata sp. n.

Male: Size large, build stout. Head dark brownish black with a large yellow spot in middle; pronotum yellowish brown with two longitudinal fuscous stripes which meet posteriorly; elytra fuscous with an external yellow stripe extending all along the costal margin and another similar one along the sutural margin also, extending from humeri to a little beyond middle; wings yellowish, fuscous laterally; legs yellowish femora shaded with black.

Head triangular, about as long as broad, somewhat depressed, sutures indistinct, posteriorly slightly emarginate. Eyes prominent, longer than genae. Antennae partly broken, only basal segment remaining, yellowish and cylindrical. Pronotum about as long as broad, anteriorly truncate, laterally convex, posteriorly slightly emarginate in middle, median sulcus distinct. Elytra ample, posteriorly convex; a small triangular scutellum visible. Wings projecting well beyond the elytra, slightly shorter than the pronotum in length. Legs stout, normal. Abdomen covered with fine pubescence, gradually enlarging from base up to the ultimate tergite. Last dorsal segment with disc convex, rugose in posterior half, hind margin in middle straight, laterally oblique and gently emarginate, median sulcus in anterior half faint, obsolete in posterior half. Penultimate sternite ample, lateral and hind margin rounded, latter slightly emarginate in middle. Forceps somewhat depressed, tapering, apices gently hooked, inner margin ventrally at base contiguous with one or two strong teeth, afterwards arched to enclose an oval space and finely crenulate, armed at middle with a strong triangular tooth. Genitalia as seen in fig. (fig. B).

Female: As male but head sutures faint; penultimate sternite obtuse in middle posteriorly. Ultimate tergite not expanded posteriorly; forceps simple, contiguous, straight with apices gently hooked and crossing.

Measurements (in mm.):

	Holotype ♂	Allotype ♀	Paratype ♂
			(from head to wing tips)
Length of body	31.9	30.7	18.9
Length of forceps	8.6	5.8	abdomen missing

Material: INDIA, NAGAG HILLS, Holotype ♂ (no further data) (Capt. Butler); E. BENGAL (now Bangladesh) (no further

data), Allotype ♀ (H. Stapleton); Paratype ♂ (abdomen missing) (no further data); all determined by M. Burr as *Cranopygia eximia* (Dohrn) and deposited in the collections of the Zoological Survey of India, Calcutta.

Affinities: This species belongs to the *Siamensis* Group of Hincks (1959) and comes close to *Cranopygia burmensis* Hincks in having almost similar parameres but differs by its larger size (40mm.) and comparatively longer distal lobes and virga.

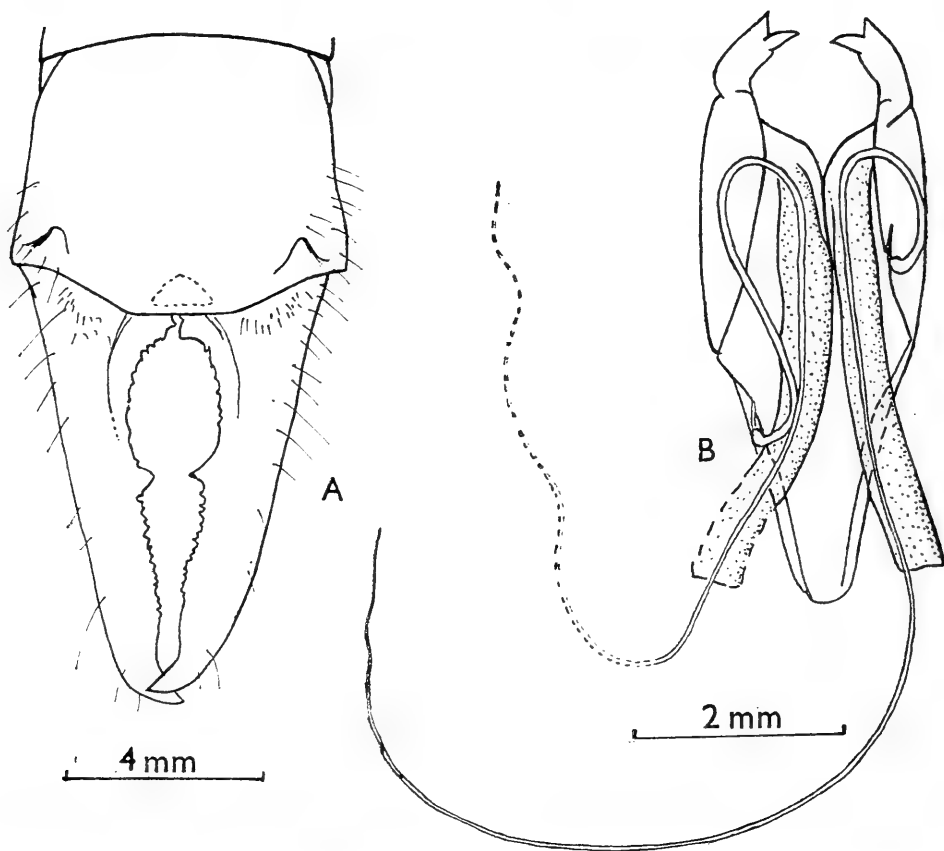


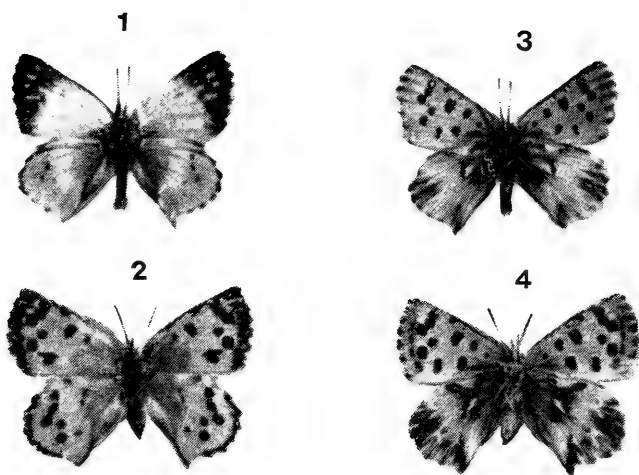
Figure 1: *Cranopygia angulata* sp. n. ♂: A. Ultimate tergite and forceps. B. Genitalia.

Acknowledgements: I am thankful to the Director, Zoological Survey of India, Calcutta for providing necessary facilities.

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PLATE IV



Poecilmitis azurius sp. nov.

Fig. 1. Holotype ♂ Upperside. Fig. 3. Holotype ♂ Underside.

Fig. 2. Allotype ♀ Upperside. Fig. 4. Allotype ♀ Underside.

Figures natural size.

A New Species of *Poecilmitis* from the
Roggeveldt Mountains of the Cape Province
(Lepidoptera: Rhopalocera)

By D. A. SWANEPOEL

c/o J. J. Mostert, S.A.R. & H., Duiwelskloof, N. Transvaal,
S. Africa

***Poecilmitis azurius* sp. nov.**

Allotype: Roggeveldt mountains, 5.10.1970 (D. A. Swanepoel).

Holotype: same locality and date, in the author's collection.

Paratype: Roggeveldt mountains, 21.10.1973, in collection Dr. J. Kaplan.

Diagnosis: a species close to *P. beaufortia charlesi* Dickson but differing in various respects. Basal blue extending further over the forewing than of that species, with the result that the spotting on the forewing upperside is faintly visible.

Forewing upperside: apical area black with orange markings. Orange markings in some males fairly distinct, in others indistinct. Spots on underside show through the basal blue. Cilia chequered. Outer margin fairly straight.

Hindwing upperside: basal blue, rather restricted, running from about two-thirds from the base of inner margin upwards for about 2mm., then bulging slightly towards outer margin and then turning to base of wing. In *P. beaufortia charlesi* the basal blue extends towards the apical area of hindwing. Spots in areas 3, 4, 5, 6 and 7. A very faint light blue over basal blue extending as far as marginal spots. This feature is absent in *P. beaufortia charlesi*. Spots in areas 3 and 4 not in line with those in 5, 6 and 7.

Underside: markings similar to that of *P. beaufortia charlesi*. In the hindwing of some specimens the brown of basal and apical areas are much more prominent and inclined to be reddish. In the holotype this colour is not as intense. Discocellular streak differently shaped than that of *P. beaufortia charlesi*. Female: as in many cases of the *Poecilmitis* complex this species and that of *P. beaufortia* and its subspecies are strikingly alike. Upperside: forewing outer margin broadly black and chequered. Spots on all wings well developed. Underside markings similar to some specimens of *P. lysander* Pennington.

This azure coloured species of *Poecilmitis* was first observed and netted by Messrs. C. Dickson and C. Wykeham in the Roggeveldt mountains in 1969. Much credit is due to them for opening the area to South African collectors. In 1970 the author took quite a number there including the allo and holotypes *in cop*. This species also shows some resemblance to *P. psyche* Penn. But in this complex there are others showing similarity to that species. The writer, however, regards this species a relative closer to *P. lysander* Penn. than to *P. psyche* Penn., its

habits being more like that of *P. lysander* than that of *P. psyche*.

Like most of the genus it is a rapid flier settling either on the ground or at times on short shrubs. Its favourite localities appear to be at the foot of mountains.

Parallelomma vittatum (Meigen)

(Dipt.: Scatophagidae) in Spain

By K. P. BLAND

63 Charterhall Grove, Edinburgh, EH9 3HT

On 5th July, 1974, at 1,180m. by the Rio Ara in Garganta de Bujaruello in the Spanish Pyrenees, I found a single inhabited dipteran leafmine in *Epipactis helleborine* (L.) Crantz (Orchidaceae). On 7th and 8th July, 1974 a careful search of the helleborines between 1,100-1,300m. in the woods of the Ordesa Valley (also in Huesca Province) yielded a further 17 similar leafmines in three different species of helleborine:—

	<i>Number of plants with mines</i>	<i>Number of live larvae</i>
<i>Epipactis helleborine</i> (L.)		
Crantz	7*	1
<i>Cephalanthra longifolia</i>		
(Huds.) Fritsch	7*	3
<i>Cephalanthra rubra</i> (L.)		
L. C. Rich	1	1

* One plant had two leaves mined.

Of these 6 living larvae 3 successfully left the leafmine and formed a puparium, but only one of these yielded an imago (emerged 29th July, 1974), the other two becoming desiccated. Using Séguy (1934a) the imago was identified as *Parallelomma vittatum* (Meigen, 1826) (identity confirmed by Dr. J. R. Vockeroth, Entomology Research Institute, Canada) and was derived from a leafmine in *Epipactis helleborine* found in the Ordesa Valley. All the leafmines from the three species of Helleborine showed a similar form and hence most probably were made by *P. vittatum*. This appears to be the first record of this orchid-mining Scathophagidae from Spain; it is not mentioned in the catalogues of Spanish diptera by Czerny and Strobl (1909) or Séguy (1934b).

Acknowledgements

I am grateful to Dr. J. R. Vockeroth, Entomology Research Institute, Ottawa, Canada, for his kind assistance and to Dr. R. P. García, Instituto Nacional para la Conservación de la Naturaleza, Huesca, for permission to collect insects in Parque Nacional del Valle de Ordesa, Huesca, Spain.

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Notes and Observations

THE SCARCE CHOCOLATE-TIP (*CLOSTERA ANACHORETA* D. & S.) IN KENT IN 1974. — I took a male specimen of this rare moth on the night of 16th/17th August, 1974 in an m.v. trap at Dungeness Bird Observatory, Kent. It was in good condition and one of very few moths in the trap after a clear cold night. This is apparently a new record for Dungeness, although it is recorded in the *Lepidoptera of Kent* (Vol. 2, p. 39) that a specimen of *C. anachoreta* was taken nearby at Lydd in 1953. — W. L. COSTER, 10 Elms Farm Road, Elm Park, Hornchurch, Essex.

JOHN ABBOT'S BIRTH DATA. — John Abbot, entomologist, ornithologist and a pioneer of natural history in the American colonies and United States, has been the subject of brief articles, and is best known to entomologists as the contributor of manuscript notes and coloured drawings which were used by Sir James Edward Smith, with species descriptions written by Smith, in *The Natural History of the Rarer Lepidopterous Insects of Georgia* (London, 1797), the first work of importance on the Lepidoptera of the region.

During a recent research trip to London to complete the collection of data for the section on Abbot to be printed in a forthcoming volume of *Studies in the History of Entomology* (which will furnish a biography of one of the more elusive of American naturalists and reprint the manuscript of his contribution to Smith's book, elucidating Abbot's role and settling the question of authorship of the "Smith and Abbot" species, which, as has been suggested, should properly be credited to "J. E. Smith"), some unestablished facts about Abbot's birth were discovered.

In 1948, Charles Remington published a text of a brief unfinished autobiographical statement in John Abbot's hand, found in the Museum of Comparative Zoology, Harvard University (*Lepidopterist's News*, **2** (1948): 28-30). Remington's transcription has been the basis of several derivative sketches of Abbot's life (e.g. Elsa Allen, "John Abbot: Pioneer Naturalist of Georgia", *Georgia Historical Quarterly*, **41** (1957): 143-157). I am indebted to Ms. Ann Blum for access to the

original MS. of Abbot's "Notes on my Life", still in the custody of the M.C.Z., in which he relates that he "was born in the Year 1751, the first of June Old Stile, at the West end of the Town London, in Bennet Street St James, my father was an Attorney at Law".

Bennet Street still exists. One block long, it runs west from St. James's Street into Arlington Street. A search in the baptismal records of St. George's, Hanover Square, which would have been Abbot's parish church, revealed that John Abbot, son of John and Ann Abbot, was born on 31st May, 1751 and baptised on 9th June. Either Abbot erred in the recollection of his birth date by one day, or the parish record (established at his baptism) did so. At any rate, we now have new data about the birth of one of the most interesting of 18th century naturalists in America, with conclusive evidence concerning his parents' names. — RONALD S. WILKINSON, Library of Congress, Washington, D.C., U.S.A.

Obituaries

WILLIAM HENRY STOREY, O.B.E.

(1905-1975)

With the death on 7th January, 1975 of Bill Storey at the age of 69, yet another distinguished field lepidopterist has been taken from us with unexpected suddenness. It was with great grief and shock for all who knew him that he passed away at his home at Great Bealings, near Ipswich, following a severe heart attack, though he had been apparently in his usual good health until then.

He was born at Bromley in Kent in 1905 and after early education at Tenterden went on to Tonbridge School. It was between the wars that he became intensely interested in the British lepidoptera, obtaining a great deal of his knowledge about our many species from that great mentor, Dr. E. A. Cockayne, whom he often accompanied on field outings. By the outbreak of the second war he had already built up a very comprehensive collection of our butterflies and the macro-moths.

After a short period in the advertising business he joined in 1938 the well-known firm of Messrs. Pye, the scientific instrument makers, based on Cambridge. Television was then in its infancy and it was this side that Bill Storey helped to develop when war service broke into his career. He served in the Royal Corps of Signals and held the rank of Captain when he was captured at the fall of Singapore. He remained a prisoner in Malaya until 1945 and used to tell many stories of his experiences at the hands of the Japanese. He rejoined Pye's in 1947 and during the next twenty years travelled to many parts of the world on their behalf, eventually becoming a director and leading executive of the Company. For his out-

standing services in furthering the sale of British scientific instruments abroad he was awarded the O.B.E. in 1968.

It was in this post-war period while living in the vicinity of Cambridge that Bill Storey was able to make a thorough survey of the lepidoptera of that area and he published several notes in the 1950s in this Journal on his more interesting and unexpected records. The Stout Dart (*Spaelotis ravida*) was one of his local specialities. He did not seem to collect much far afield nor on his visits overseas. It was on his retirement from his professional duties in 1969 that he went to live at Great Bealings, in Suffolk. This proved an ideal spot for him to run his mercury vapour trap and sample the insects of a new area which he did to great advantage for the next five seasons. During this period he obtained a good many species which were scarce in that part of England, including the White Speck (*Leucania unipuncta*) and in 1974 probably the only Striped Hawk (*Celerio livornica*) recorded in Britain that year. But his most remarkable capture taken there in 1971 was a halved gynandromorph of the Barred Red (*Ellopiia fasciaria*).

He joined the then South London Entomological Society as far back as 1924 and was about to be made an honorary member on his completion of fifty years of membership. He also latterly belonged to the Suffolk Naturalists' Society of which he became a keen supporter.

His untimely end has indeed robbed the entomological world of one of its most enthusiastic adherents. Of the most happy and kindly nature he will be greatly mourned and missed not only by a large number of colleagues in the scientific sphere, but also by a great many friends with similar interests in natural history. It is certain that the whole-hearted sympathy of this large company will have gone out to his widow, four daughters and other surviving members of his family in their irreparable loss. — C.G.M. de W.

CHARLES ALBAN WILLIAM DUFFIELD, M.C (1887-1974)

There must be many collectors of our lepidoptera who used to visit Alban Duffield at his home with its superb setting beneath the downs at Brook, near Wye, in Kent and most of them will probably have sampled or observed the rich fauna and flora of those wonderful surroundings where he passed away on 9th December, 1974 at the advanced age of 87. For for half a century he had studied all branches of nature around him there and in particular entomology.

He was born in June 1887 at Cranleigh in Surrey, his father being a schoolmaster in Holy Orders. He went on to Cambridge University in 1908 and then as a student to the Agricultural College at Wye where he joined the staff in 1919 as a lecturer and expert entomologist after serving in the Royal West Kent Regiment during the latter part of the 1914 War. He was awarded the Military Cross in 1917. In 1931 he left the

College to join a commercial firm interested in the production of derris powder as a pesticide. During the 1939-45 War he threw himself wholeheartedly into the activities of the Home Guard, eventually commanding his local battalion.

His great interest in most things entomological never flagged and it was probably while serving under Prof. Theobald at Wye College that he began to collect the Frog-hoppers (Cercopidae) of which he made a life-long study and brought together a first class collection on which he wrote quite a number of papers. In his latter years too he became keenly interested in bumble bees, also in the vagaries and theories of melanism. But not least among his many pursuits was that of the lepidoptera, mainly those species to be found on his own home terrain of which he built up a most comprehensive and valuable assemblage of insects. For many years after the war he ran a mercury vapour trap which brought in quite a lot of unexpected visitors, one of which was the small noctuid, the Pretty Marbled (*Lithacodia deceptoria* Scop.), a very choice and rare migrant to our shores. Several local species were a the Plumed Prominent (*Ptilophora plumigera* D. & S.) which source of attraction to visiting collectors to his home, not least sometimes used to abound there in mid-November. Alban Duffield was for a long time a member of the Folkestone Natural History Society. On one hot day in June 1948 he entertained a number of its members after a field meeting on the downs near his house, Pickersdane. When they sat down to tea, little did they realise that over their heads was a huge nest of nearly full-fed larvae of the Large Tortoiseshell feeding on a weeping willow. Perhaps providentially their host only spotted it after they had left.

East Kent was his dedicated home from which he seldom travelled far afield, though he used to survey the country around, especially Dungeness. It was fortunate that he was able to negotiate for the Nature Conservancy to take over his downland which is preserved as a heritage to his memory. It is also a happy thought that his fine collections are going to Maidstone Museum. He joined the then South London Entomological and Natural History Society in 1949 and lectured to it on several occasions. He was also a Fellow of the Royal Entomological Society. His wife predeceased him by a few years.

His cheerful presence will be greatly missed by entomologists who used to visit him annually and derive much pleasure from discussing the insect orders in which he specialised, for he was a real savant on the subject and above all on the natural history of his surroundings.

All sympathy goes out to his son and daughter from all who were privileged to be numbered among his friends.—
C.G.M. de W.

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A guide to the natural history manuscript resources of the British Isles is being prepared by Gavin Bridson (Librarian, Linnean Society of London, Burlington House, Piccadilly, London, W1V 0LQ) and Anthony P. Harvey (Librarian, Department of Palaeontology, British Museum (Natural History), Cromwell Road, London, SW7 5BD). Relevant libraries, museums and other organisations are being surveyed by means of questionnaire. A particular problem of this survey is the wide scattering of material as shown by its presence in some unlikely locations and many individuals will, through their own researches, have come into contact with such items. They may also know of undocumented items in public and private collections and might be able to contribute valuable information. The compilers will be grateful for, and readily acknowledge, any such information. The results of this survey are to be published by the Bowker Publishing Co. Ltd. in 1975.

EXCHANGES AND WANTS

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Back numbers.—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

A Survey of the Macrolepidoptera of Croydon and North East Surrey by L. K. and K. G. W. Evans. 133 pp. with 4 plates and detailed area map. Price £1.20 including post/packing. To be obtained from The Secretary, Croydon Natural History and Scientific Society, 96a Brighton Road, South Croydon, Surrey, CR2 6AD.

Wanted. — HYDROPTILIDAE (Trichoptera) Specimens or data from any part of the British Isles. Identification will be provided, if required by the sender. Material to:— Miss J. E. Marshall, Entomological Dept., Natural History Museum, Cromwell Road, South Kensington, London.

Wanted During 1975. — Livestock (ova, larvae or pupa) of *Colias croceus* (Clouded Yellow) and *C. Hyale* (Pale Clouded Yellow).—Please write stating quantity, price, and place of origin, to: D. J. Tolhurst, 13 Armytage Close, Hoo, Rochester, Kent, ME3 9AP.

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Wanted — for research purposes — parasitic Hymenoptera reared from identified Lepidopterous and other hosts. If you are willing to help and would like further details, please write to — Dr. M. R. Shaw, Dept. of Zoology, University of Manchester, Manchester 13.

Wanted — Light Trap. Recorder needs portable trap, as designed by J. Heath, burning 8 inch 6 watt tube. As trap is wanted for both battery and mains operation, inclusion of a mains control unit, in addition to the balast unit, would be desirable. No batteries required. Buyer will view and collect anywhere in or near Oxfordshire; or purchase elsewhere by post.— C. Garrett-Jones, 16 Conduit Road, Abingdon, OX14 1DB. Abingdon 376.

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(Founded by J. W. TUTT on 15th April, 1890)

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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by J. M. CHALMERS-HUNT, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

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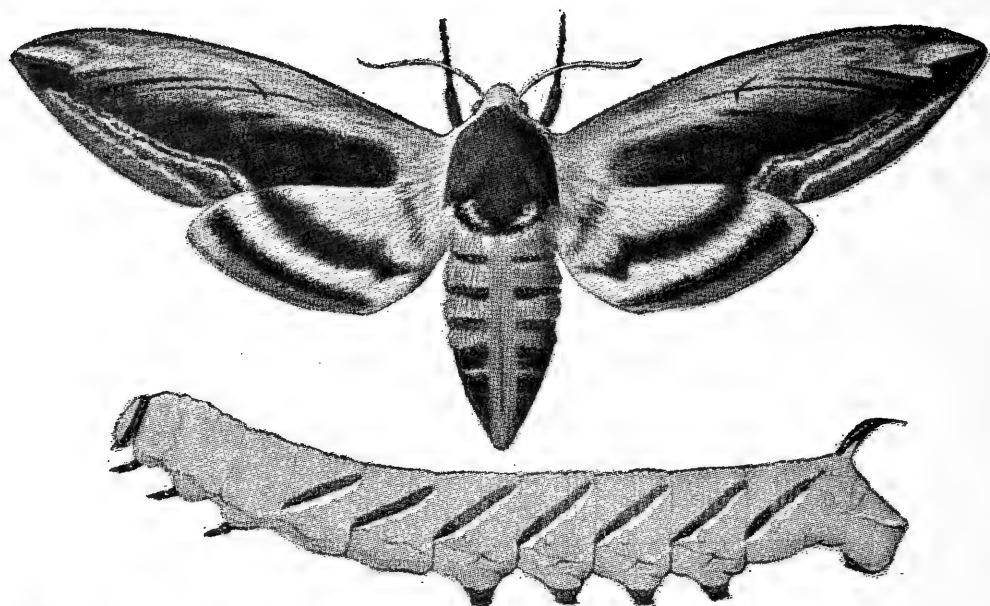
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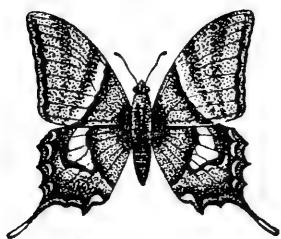
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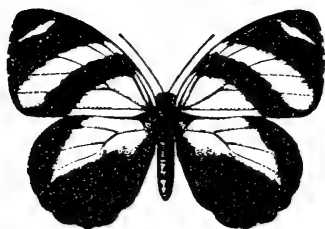
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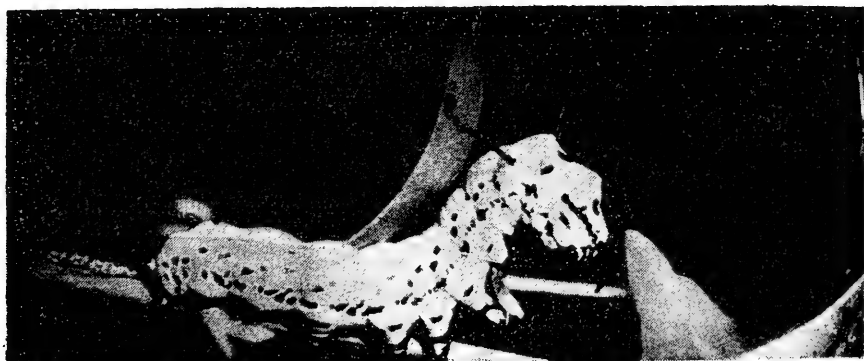
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2



4



1



3

Argyrocupha malagrida cedrusmontana subsp. nov.

Fig. 1: ♂ Holotype (upperside) Fig. 2: ♂ Holotype (underside)

Fig. 3: ♀ Paratype (upperside) Fig. 4: ♀ Paratype (underside)

Figures 1.83 times natural size

An Additional New Race of *Argyrocupha malagrida* (Wallengren) (Lep.: Lycaenidae)

By C. G. C. DICKSON

"Blencathra", Cambridge Avenue, St. Michael's Estate,
Cape Town

and R. D. STEPHEN

"Asteris", 13th Avenue, Zeekoe Vlei, Cape
No. 32

The nominate race of the above species is known only from a few localities on the western side of the Cape Peninsula, while another race from the Paarl and Paarde Berg Mountains was described by the first author in 1967, under the name of *Phasis malagrida paarlensis* (*Entomologist's Rec. J. Var.*, **79**, No. 11). The present race, which was discovered at a high elevation and some 80 miles N.N.E. of the Paarde Berg, is placed under the new generic name of *Argyrocupha* Tite and Dickson, which has been erected solely for the distinctive species *malagrida* (vide "The Genus *Aloeides* and allied Genera (Lepidoptera: Lycaenidae)", 1973, *Bull. Br. Mus. nat. Hist. (Ent.)*, **29**, No. 5).

Argyrocupha malagrida cedrusmontana supsp. nov.

A brightly coloured race, with the very deep brownish-black borders on the upperside bounding the rich orange-red ground-colour, wide; light marking of underside silvery-white without, or with less of, the slight golden tone which is present, particularly, in *Arg. malagrida paarlensis*.

Male, Upperside:

Orange-red in all wings more extensively and clearly developed than in nominate race, but rather less so than in *paarlensis* owing to the dark distal borders being wider, especially in the forewings, than in the latter race.

Forewing: As in the case of *paarlensis*, no dark veining apparent in orange-red field—this being present in some specimens of nominate race.

Hindwing: Dark veining at least partly developed in most specimens—more often absent altogether in *paarlensis* but as a rule well developed in nominate *malagrida*. Inner edge of distal dark border less even than in *paarlensis*, being almost consistently crenulate in all specimens and thus much as in nominate race. Distal margins less even than in either of the other two races, with a more pronounced dark projection at the end of vein 2 and the anal-angular projection itself more produced.

Light divisions in cilia of all wings generally very clearly developed, and practically pure white—against the frequent off-white tint in the other two races, especially in examples of *paarlensis*.

Underside:

Forewing: Clarity of light markings in general and the submarginal dark marking, at least equal to that of nominate race and not less clear, as is usual in *paarlensis*.

Hindwing: Irregular discal series of light markings less distinct and more broken superiorly, above vein 3, than in

nominate race—as well as in comparison with most specimens of *paarlensis*. Light sagittate markings between discal series and margin, tending to be more acute than in either of the other two races.

Light spaces in cilia of all wings inclined to be of a purer white than in nominate *malagrida*, and definitely more so than in *paarlensis*.

Length of forewing: 12.5-15.75mm. (14.25mm. in holotype).

Female, Upperside:

Much as in male, as regards the female allotype, but upper margin of orange-red area in forewing less clear-cut and inner portion of that of hindwing noticeably suffused with dark scaling; female paratype with the ground-colour more ochreous-orange and much more extensive, and dark borders consequently narrower.

Light divisions of cilia in all wings more white than in, at least, *paarlensis*.

Underside:

Similar to that of male but, in the well marked allotype, silvery-white marking of hindwing, from base up to and including discal series, very well developed and prominent; in female allotype, the corresponding marking far less fully developed, and underside, in some parts, also less darkly marked.

Length of forewing: 15.5-16.5mm. (the latter measurement, that of allotype).

Body and ancillary parts resembling closely those of the other two races of *malagrida*.

This is, on the whole, a comparatively large race—but with a few of the males certainly small specimens. The forewings of the males normally have the distal margin slightly concave between veins 2 and 4. In a fair proportion of specimens the main light marking of the hindwing underside is more attenuated than in the other races of this butterfly.

Male Holotype, WESTERN CAPE PROVINCE: Langberg, Cedarberg Mtns., 18.ii.1973 (R. D. Stephen); presented by R. D. Stephen to Transvaal Museum.

Female Allotype, W. CAPE PROVINCE: data as for holotype (F. Honiball); also allocation of specimen.

Paratype in Coll. British Museum (Nat. Hist.): as holotype, 1 ♂ (R. D. Stephen); British Museum Reg. No. Rh.17351.

Paratype in Coll. National Museum of Rhodesia, Bulawayo: as holotype, 1 ♂ (R.D.S.).

Paratypes in Coll. F. Honiball: as holotype, 6 ♂♂ (F.H.).

Paratypes in Coll. R. D. Stephen: as holotype, 5 ♂♂, 1 ♀ (R.D.S.).

Paratype in Coll. C.G.C.D.: as holotype, 1 ♀ (R.D.S.).

Paratype in Coll. Dr. J. Kaplan: as holotype, 1 ♂ (R.D.S.).

Paratype in Coll. D. A. Swanepoel: as holotype, 1 ♂ (R.D.S.).

In preparations of the male genitalia, no very marked difference has been found between those of the taxa concerned

PLATE VI

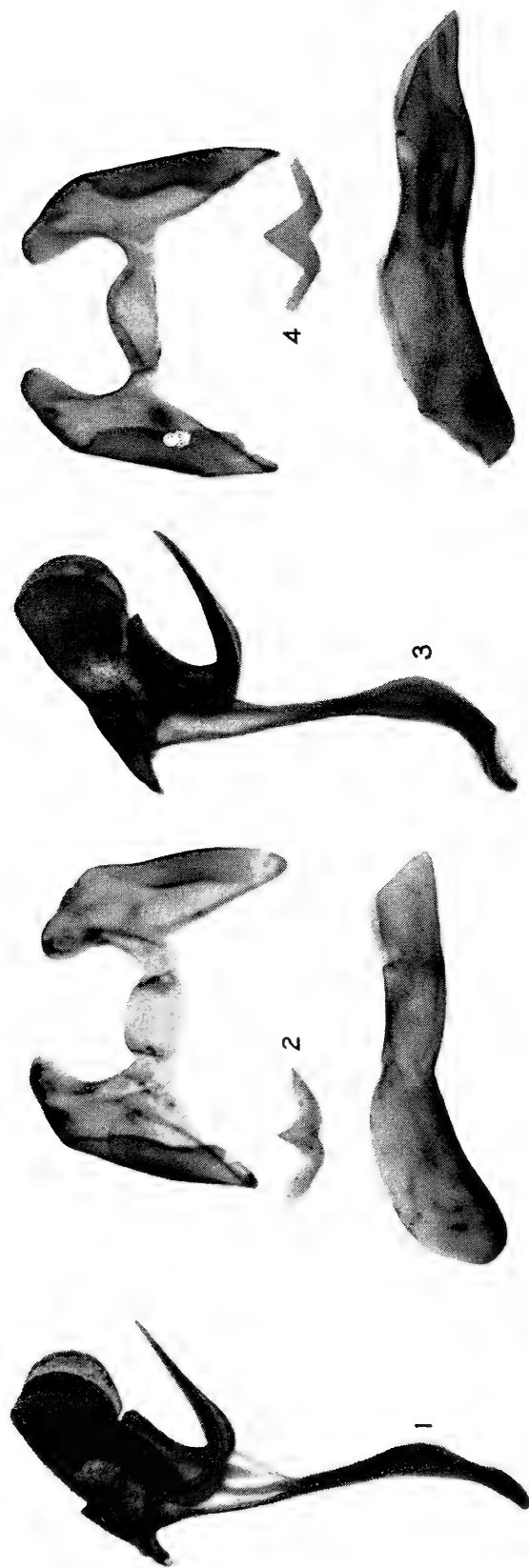


Photo: H.N. Wykeham.

Genitalia of two races of *Argyrocupha malagrida* (Wallengren)

Figs. 1-2: ♂ Genitalia of *Argyrocupha malagrida paarlensis* (Dickson) (Paarl Mtn., C.P. (R. D. Stephen)).

Figs. 3-4: ♂ Genitalia of *Arg. malagrida cedrusmontana* supsp. nov. (Cedarberg, C.P. (F. Honiball)).

Sets of figs. 1-2 and 3-4, represent in each case: basic portion of structure (tegumen, uncus, etc.), with falces intact but valves and aedeagus removed; valves spread out and mounted under very slight pressure; juxta, fully compressed; aedeagus, under virtually no pressure.

Figures 25 times natural size

(although one apparent exception is mentioned later). This is not surprising, in view of the frequent close similarity in the genitalia of even very distinct species in each of the allied genera. The accompanying figures represent the genitalia of *Arg. malagrida paarlensis* and *Arg. malagrida cedrusmontana*. The genitalia of the nominate race have unavoidably been omitted. Two preparations of each of the taxa named were made and, although individual variation in specimens and small discrepancies in mounting have to be taken into account, where most of the parts are concerned, there has been a noticeable difference in the distal end of the aedeagus, in these preparations, anyway. In the case of *paarlensis* the open distal end forms a relatively obtuse angle, in the lateral view, but in *cedrusmontana*, an acute angle. The late Rev. Desmond P. Murray has described briefly and figured the male genitalia of the nominate race in "The Genitalia of the Genus *Phasis* and Allied Genera", 1958, *Ann. S. Afr. Mus.*, 44: 269-78.

The most interesting discovery of this new race of *Argyrocupha malagrida*, which extends the known range of the species so much further northwards, is due to the diligence and enthusiasm of Mr. Frank Honiball (Government Entomologist at Citrusdal, C.P.), in exploring and searching for butterflies in the higher and less accessible portions of the Cedarberg Mountains.

Mr. Honiball, who has proposed the name for this new race, has written in connection with it as follows: "An expedition on 13th February, 1971, to Langberg in the Northern Cedarberg range was undertaken to take photographs of the Snow Protea, *Protea cryophila* Bolus, that was flowering at that stage.

"The hut below the peak, at a height of well over 5,000 ft., was reached at about 5 p.m. During a late afternoon walk south of the hut, the writer came across a Copper that flew up from a bush, to resettle after a while on the ground. It was eventually taken and although badly damaged in the process was later found to be a race of *Argyrocupha malagrida*. No further specimens were taken during this visit."

In the following statement R.D.S. gives his own recollections when visiting the locality two years later with Mr. Honiball.

On the 18th of February, 1972, I accompanied Frank Honiball on a trip by hired Land Rover up the forestry roads of the Cedarberg range to a height of 6,000 ft., on the mountain called "Langberg". After a brief search in the area where Frank had taken his first specimen two years previously, we located *Arg. malagrida cedrusmontana* over a limited area, flying in short grass and low shrubs similar to those frequented by *Arg. malagrida paarlensis*. A long search determined that they were restricted to an area about the size of a football field. Half a mile further north we found another spot. It seems likely that they will be found throughout the Cedarberg range. This range has recently been proclaimed a wilderness area, which forbids "development" and exploitation. Bridle paths will give hikers easy access to the mountains for the first time, which should

result in many more interesting entomological and botanical discoveries from this area.

Arg. malagrida is a good example of the manner in which the races of a butterfly species have evolved, and become isolated, in mountainous stations as a result, presumably, of unfavourable climatic changes in the lower intervening stretches of country causing the species to abandon these areas for the higher ground. Although too recent to be a contributory cause in this connection, wheatlands which now cover vast areas of the South Western Cape have certainly eliminated most of the butterflies (considered numerically) which once occurred there and were dependent on indigenous plants. Those that remain have obtained sanctuary in pockets or islands of vegetation unsuitable for cultivation.

Early stages of nominate *Arg. malagrida* recorded (in part) by Clark and Dickson in *Life Hist. S. Afr. Lyc. Butt.* (1971)

Some Aspects of the Biology of the Bark Louse *Graphopsocus cruciatus* (L.) (Psocoptera: Stenopsocidae)

By T. D. HEILBRONN

Sixth Form, Uppingham School, Uppingham, Rutland

Graphopsocus cruciatus (L.) is a winged psocid which is to be found on a wide variety of trees and shrubs, mostly deciduous. I have obtained it from the following:

Commonly: hawthorn; privet

Often: sycamore; blackthorn

Occasionally: alder; apple; box; cedar; ivy; holly; laurel; spiraea; yew.

The species first appears on or about the first week in April, and becomes very abundant by the middle of May. There are six nymphal stages, the adult appearing in the last week of May. The first eggs are laid in the middle of June, and continue to be laid until about the middle of July, the first eggs hatching in the first week of July. The second generation of adults matures in the last week of August, becoming abundant by the end of September. Eggs are again laid during October, November and December if the winter is mild, the adults dying in early or mid-December depending on temperature. Overwintering adults have been recorded in the south of England but no adults were found in Uppingham after the beginning of December.

Figure 1 shows the adult of *G. cruciatus* drawn from a slide. The wings are marked with patches of various intensities of brown. The head is pale yellow, though the postclypeus may be brown. The eyes are grey to black, the thorax is yellow with brown dorsal lobes, and abdomen greenish yellow with a brown apex.

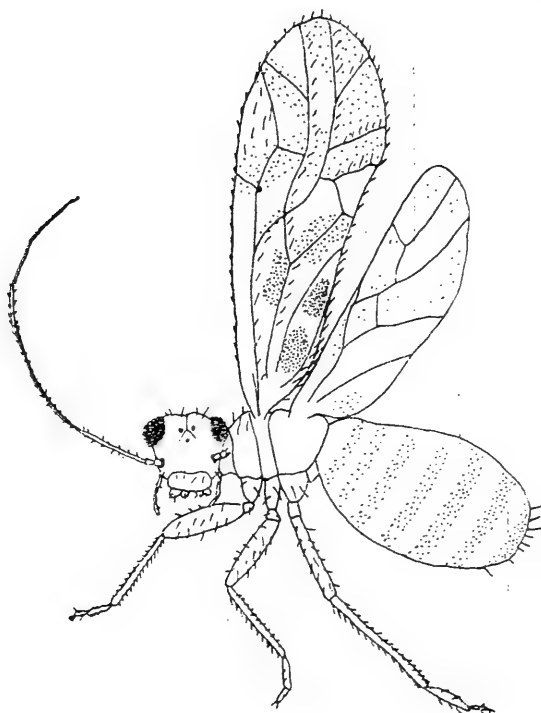


Fig. 1. *G. cruciatus* adult; left antenna and right wings and legs omitted.

THE EGGS

When first laid the eggs are a pale yellow-white; by the time of hatching they have darkened to a lemon yellow colour. They are laid in groups of up to sixteen in number, usually on dead twigs. Figure 2 shows variation in batch size in the wild, which produces a mean batch of 7.08 eggs. In November 1974 I collected a large number of adults, which laid eggs on the walls of the jars in which they were kept. Figure 3 shows variation in batch size in this captive stock, with a mean batch of 5.39 eggs. The statistically significant difference between these two sets of egg batches may be partly due to sampling error, as it is possible that some smaller egg batches were overlooked in the wild situation. It is likely therefore that figure 3 represents a situation which may well occur in the wild as well. The eggs have a mean length of 0.464 mm. and a mean breadth of 0.270 mm. Figure 4 is drawn from a photograph showing a batch of five eggs with their covering of silk.

THE NYMPHS

G. cruciatus overwinters as diapausing pronymphs within the egg shells. The time taken to hatch depends on temperature rather than season. Eggs laid in November and kept inside from the start took 28 days to hatch at 18°C. Eggs laid outside in November but not brought indoors until late January took 38 days to hatch at 15°C. Eggs from the November laying

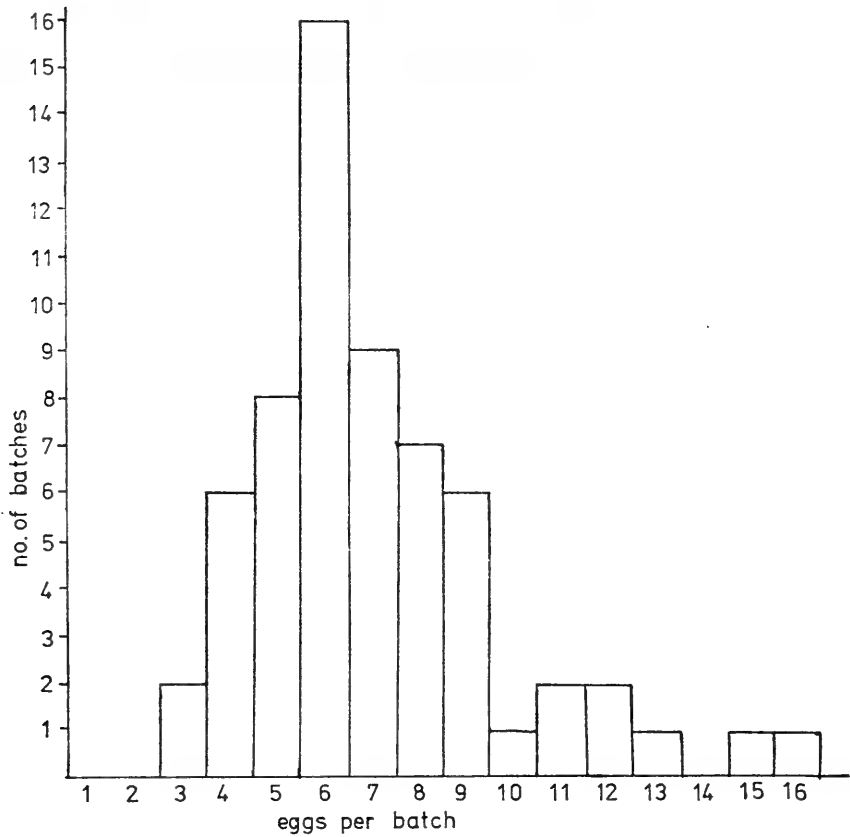


Fig. 2. Variation in egg batch size; samples collected in the wild; mean batch 7.08; 62 batches collected.

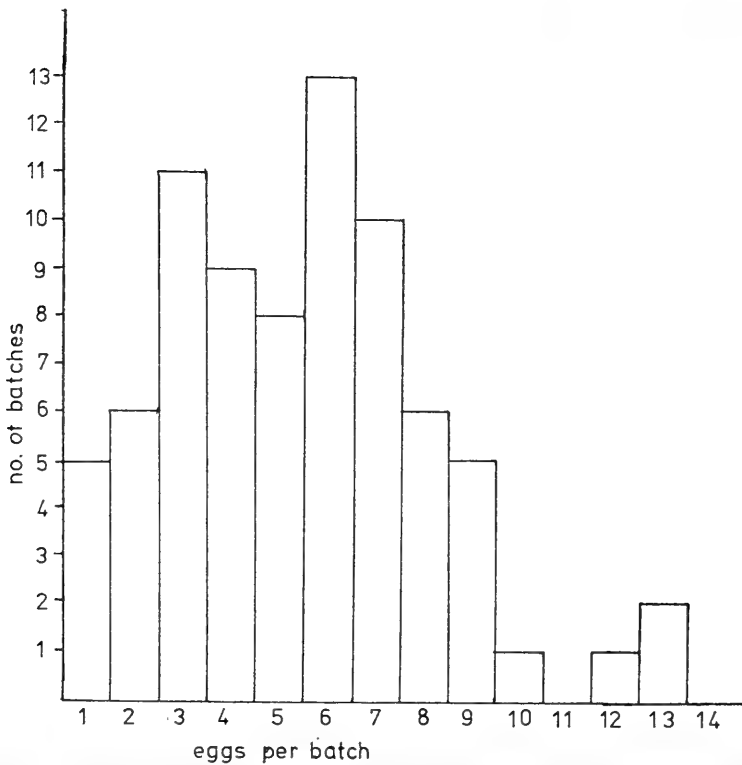


Fig. 3. Variation in egg batch size; eggs laid in captivity; mean batch 5.39; 77 batches collected.

brought indoors in February took only 5 to 6 days to hatch at 27°C.

There are six nymphal instars. The length of the nymphal phase similarly varies with temperature. My nymphs were kept at 20°C. and they took 28 days to mature, which accords well with New's data (New, 1969). The first nymphal instar differs from the subsequent five instars in having antennae with only eight segments, rather than thirteen. The body has a lemon yellow ground colour. The eyes are dark red to black. The later instars have a darker lemon yellow ground colour and develop various castaneous markings. In the sixth instar both wing pads have a broad grey transverse stripe.

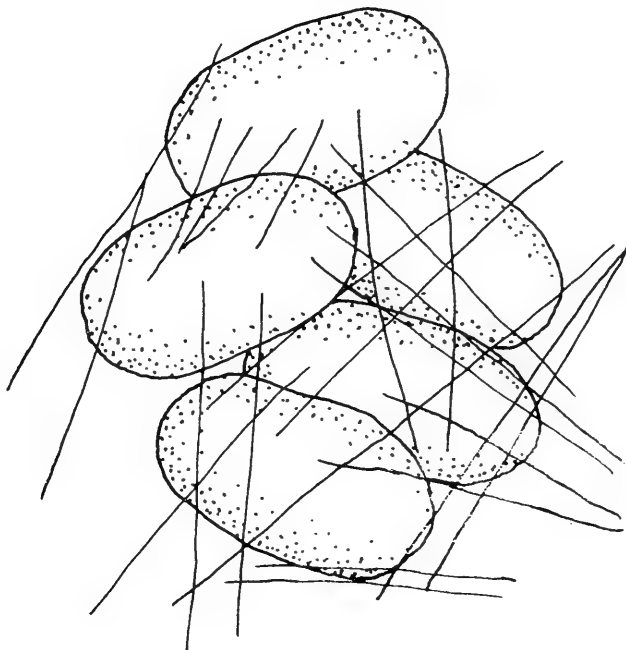


Fig. 4. Egg batch of *G. cruciatus*.

THE BEHAVIOUR OF ADULTS IN CHOICE CHAMBERS

Choice chambers were constructed from plastic petri dishes, to the design usually produced for school experiments on woodlice.

1. Atmospheric humidity choice

High humidity was maintained by moist cotton wool and low humidity by anhydrous calcium chloride below the compartments containing the insects. The results of this experiment were equivocal. Twenty psocids were used at a time, and it requires a grouping of sixteen or more in one chamber for the results to be significant at the 5% level. In the first run of the experiment such numbers occurred in the moist chamber at 9 a.m. and in the dry chamber at 5 p.m., appearing to indicate a diurnal change of preference. However, re-runs of the experiment produced significant grouping in the dry chamber only, between 9.30 p.m. and 10.30 p.m. In view of the fact that *G.*

cruciatus needs a moist atmosphere for successful rearing, this apparent preference for the dry chamber is unexplained.

2. Light intensity choice

Choice chambers of the same design were used, with one chamber completely surrounded by black paper. Under normal interior daylight conditions the preference, if any, was for the light chamber. When the illumination in the light chamber was doubled, using a lamp, there was a significant movement into the dark chamber. This may have been due to the heating effect of the lamp.

GREGARIOUS BEHAVIOUR

Individuals of *G. cruciatus* form small groups at all stages in their development, from first day nymphs to adults, and the various instars group freely together. Observations were made using a chamber divided into four regions and recording the distribution of individuals in the four regions (which did not offer any environmental differences). Groups were largest during the morning and evening (observations were not made at night), being least when the insects were most active (11 a.m. to 4 p.m.). As an example, 44 insects were introduced into the chamber. By the time that they had settled for the evening (8 p.m.) 40 of them were to be found in four groups, containing respectively 24, 8, 5 and 3 individuals.

When other species of psocid are introduced with them, *G. cruciatus* does not group with the intruders.

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- New, T. R. (1974). *Handbooks for the identification of British insects*, Vol. 1, Part 7, *Psocoptera* (Royal Entomological Society, London).

THE LARGE TORTOISESHELL (*NYMPHALIS POLYCHLOROS* L.) IN WEST SUSSEX, 1964-72. — Considering how rare this butterfly has been in Britain during the past twenty years, the following records of my seeing it in West Sussex may be of interest. All were noted on footpaths resting with wings open. Although I made no attempt to capture them since I do not keep a collection, I was able to confirm identification in each case by a close-up view.

1964: 11.50 a.m., 19th July (one, the first I ever saw).

1968: 11.17 and 11.45 a.m., 16th April (two).

1969: 10.52 a.m., 6th April (one).

1971: 1.05 p.m., 20th April (one).

1972: 12.55 p.m., 28th April (one).

All the above were noted in the same area, but I have not seen the butterfly since. — ALISON ROSS, c/o The Editor, *The Entomologist's Record and Journal of Variation*, 14.iii.1975.

Lepidoptera in Perthshire and Inverness-shire,
June 1974, including the Rediscovery of *Ancylis*
tineana Hübner (Lep.: Tortricidae)

By MICHAEL W. HARPER

The Cherry Orchard, Bullen, Ledbury, Herefordshire
and JOHN R. LANGMAID

38 Cumberland Court, Festing Road, Southsea, Hampshire

En route for Newtonmore we stopped the dormobile near Struan, Perthshire, on the afternoon of 17th June, 1974, ostensibly to exercise both ourselves and M.W.H.'s golden retriever; and to search for larvae of *Orthosia gracilis* (D. & S.) on bog myrtle. The afternoon was overcast, muggy, and there was a fine drizzle. Walking along the heather and bog myrtle-clad area by the railway line we found many fine bright *Gymnoscelis rufifasciata* (Haworth) at rest on the posts, and a few *Eupithecia satyrata* (Hübner). In the dull weather many micros were flying, including *Lampronia oehlmanniella* (Treitschke), *Pleurota bicostella* (Clerck), *Crambus pratella* (Linnaeus), *Crambus nemorella* (Hübner), *Opsibotys fuscalis* (D. & S.), *Pterophorus tridactyla* (Linnaeus), *Platyptilia acanthodactyla* (D. & S.), *Stenoptilia bipunctidactyla* (Scopoli), *Clepsis senecionana* (Hübner), *Amelia viburnana* (D. & S.), *Epiblema scutulana* (D. & S.), *Ancylis uncella* (D. & S.), and two specimens of what later turned out to be *Ancylis tineana* (Hübner).

Only two specimens of this species have previously been reported; one netted on the south shore of Loch Rannoch on the afternoon of 3rd June, 1919 by F. G. Whittle, and the other on 14th June, 1923 at the same locality by W. G. Sheldon. According to Meyrick and L. T. Ford the imago flies from May to August, and the larva is found in June and July, and again in September and October. It is not made clear whether it is bivoltine, but presumably this information was from Continental sources and might not be relevant to this country anyway. The foodplants are said to be hawthorn, blackthorn, aspen, etc. There was certainly plenty of aspen in the area where we found it, but the only larvae we found on the aspen were *Anacampsis populella* (Clerck).

Clearly further searching is necessary to ascertain the food-plant and distribution in this country of this obscure little moth.

Blissfully unaware of the value of our captures we proceeded to search the bog myrtle for larvae, finding quite a large number of *O. gracilis*—still quite small; and several *Lithomoia solidaginis* (Hübner) which were unfortunately all parasitised. Micro larvae on the bog myrtle later produced specimens of *Epinotia caprana* (Fabricius), *Exapate congelatella* (Clerck) and *Acleris caledoniana* (Stephens).

Still in the rain we motored on to Newtonmore where we stayed until 22nd June. The weather improved gradually during those few days, and we were able to get out and about on at least part of the 18th and 19th, and the whole of the 20th and 21st. On the 18th we assaulted the lower slopes of Creag Dhubbh where we found larvae of *A. populella* abundant on the aspens,

but netted no more *A. tineana*! A little higher up was an area of bog myrtle, the searching beating of which produced larvae of *Lycia lapponaria* (Boisduval), *Perizoma didymata* (Linnaeus), *Operophtera brumata* (Linnaeus), *Xylena vetusta* (Hübner), but no *O. gracilis*. Micro larvae produced *Scrobipalpa costella* (Humphreys and Westwood), *E. caprana*, *E. congelatella*, and *A. caledoniana*. Higher still among *Arctostaphylos* and *Vaccinium myrtillus* we caught specimens of *Epinotia nemorivaga* (Tengström), *Ancylis unguicella* (Linnaeus), *Ancylis myrtillana* (Treitschke), *Olethreutes mygindiana* (D. & S.), and a small, pale sandy-coloured form of *Olethreutes lacunana* (D. & S.). On the way back we took specimens of *Epinotia tetraquetra* (Haworth), *Epinotia subocellana* (Donovan), and *Hedya atropunctana* (Zetterstedt).

On the 19th we were joined by Mark Young who had motored from Aberdeen, and we all drove over to Cairngorm. Here *E. satyrata* were flying in numbers, as was *Ematurga atomaria* (Linnaeus), one of which proved to be a fine specimen of *ab. unicoloraria* (Staudinger). We climbed to a height of about 3,500 ft. finding many fresh *Coenoteophria salicata* (Hübner), *E. nemorivaga*, *A. unguicella*, *A. myrtillana*, *Olethreutes schulziana* (Fabricius), and *Apotomis grevillana* (Curtis) which were disturbed from clumps of bilberry. On the way down from Cairngorm larvae were common on the lush cushions of bilberry in Glen More, and from these emerged two fine *Acleris maccana* (Treitschke), several *A. caledoniana*, and a large number of *Rhopobota unipunctana* (Haworth). We then stopped at a marsh near Kincaig where larvae of *Acleris aspersana* (Hübner) were abundant on *Potentilla palustris*, and clouds of *Lampronia rubiella* (Bjerkander) were flying around the wild raspberry bushes.

On the 20th one specimen of *Rhopobota ustomaculana* (Curtis) was taken on the slopes of Creag Dhubh, and a single fresh male *Rheumaptera hastata* (Linnaeus) flying over the bog myrtle in the afternoon. *O. mygindiana* was common on the slopes of Creag an Loin, and *Parasemia plantaginis* (Linnaeus) were flying high and wildly in the sunshine.

The 21st was a beautiful, hot sunny day, and wet set off on foot for Carn Ballach, which is just over 3,000 ft., in the hope of finding *Psodos coracina* (Esper) in spite of it being the "wrong" year. On the way we took two specimens of *Philedone gerningana* (D. & S.), and at a height of 2,000 ft. several *Hyppa rectilinea* (Esper) sitting on posts on bare moorland. There followed the final 1,000 ft. climb which was rather steep, and we negotiated it obliquely. The slope was heather-clad, with grassy flushes at intervals, one of which had a lot of bilberry in it and here *Olethreutes obsoletana* (Zetterstedt) was common. Most were quite fresh, and very variable. At about 2,800 ft. we found a spring which quenched our thirst and provided an ideal spot to eat our packed lunch. Shortly afterwards we took a series of *Eudonia alpina* (Curtis) which appeared to be quite common at this level. Later we reached the summit and were pleased to find *P. coracina*, both males

and females, flying freely. They were difficult to follow over the slaty ground, being ideally camouflaged both in flight and at rest, but a good series was secured, and they were all in fine condition. We returned to Newtonmore hot, tired, aching, and delighted with the success of the day.

The MV trap over these few days produced two *H. rectilinea*, some beautiful large pale *Diarsia rubi* (Vieweg)—which some would no doubt call *florida* (Schmidt)—several *Selenia lunularia* (Hübner), *Eudonia murana* (Curtis), the small, bright Scottish form of *Scoparia ambigualis* (Treitschke), but little else worthy of comment.

Early on the morning of the 2nd we set off for the Isle of Skye. Stopping for a picnic in Glen Shiel we took the opportunity to search some more bog myrtle, but only managed to find *S. costella*, *E. caprana*, and *A. caledoniana* again. Having crossed on the ferry from Kyle to Lochalsh to Kyleakin we motored to the Sligachan Hotel where we stayed until the 28th. On the way we stopped again just north of Broadford to examine a lush growth of bog myrtle, finding larvae of *O. gracilis*, *X. vetusta*, *P. didymata*, *Abraxas grossulariata* (Linnaeus), *O. brumata*, *E. caprana*, *E. congelatella*, *A. viburnana*, *A. caledoniana*, and *Acleris latifasciana* (Haworth). Quite a few moths were flying, including *Scopula ternata* (Schrank), *Xanthorhoe montanata* (D. & S.), *E. satyrata*, *G. rufifasciata*, and *Plagodis pulveraria* (Linnaeus).

We settled comfortably in to the Sligachan Hotel where we were kindly allowed to run a MV light, were given an ample lunch each day, and an excellent evening meal.

On the 23rd we travelled to a bay on the west coast of the island where we hoped to find *Zygaena purpuralis caledonensis* (Reiss). The locality was sheltered from the east wind, and it was extremely hot. The slope was steep and quite difficult to negotiate. To our delight we had very obviously caught the species at the peak of its emergence. If anyone had told us how common it could be we would never have believed it. It was sometimes almost impossible to avoid treading on them. We counted as many as eight on one small plantain head, hawkweed and thistle was crawling with them. Standing still we could at times hear the faint crackling sound of the moths emerging from and rotating inside their paper cocoons, and there were sometimes two or three pairs *in copula* on a single grass stem. The species in this locality showed a wide range of variation, from dusky brownish to almost black and from pinkish yellow to yellow and dusky yellow. We have classified the varieties into five groups and hope to describe and name them in another paper. In this locality *Zygaena filipendulae anglicola* (Tremewan) was not common, and most of them were rather worn. Also in evidence were *Vanessa atalanta* (Linnaeus) of which we counted five, *Argynnis aglaja* (Linnaeus), *Aglais urticae* (Linnaeus), *Maniola jurtina* (Linnaeus), *Coenonympha pamphilus* (Linnaeus), *Pieris napi* (Linnaeus), *Polyommatus icarus* (Rottemburg), *Xanthorhoe designata* (Hufnagel), *X. montanata*, *Camptogramma bilineata atlantica* (Staudinger),

Alcis repandata (Linnaeus), *Autographa pulchrina* (Haworth), *Eucosma cana* (Haworth), and *Falseuncaria ruficiliana* (Haworth).

The 24th was yet another cloudless day, and this beautiful weather was to continue for the rest of our stay. God was in his heaven and all was right with the Isle of Skye. We decided to explore the north coast of Loch Harport, failing to find *Z. purpuralis* or any suitable terrain for it there, but larvae of *O. gracilis* were common on the bog myrtle, and one specimen of *Olethreutes rivulana* (Scopoli) was flushed from bracken. Later that day we went to Talisker Bay to look for *Zygaena lonicerae jocelynae* (Tremewan). The moth was common over a very limited area, as were its pupae and full grown larvae. Here also were larvae of *Hadena confusa* (Hufnagel) in flowers and seed heads of *Silene maritima* and *S. dioica*; a single larva of *Antitype chi* (Linnaeus), and plenty of larvae of *Thera cognata* (Thunberg) were beaten from creeping juniper overhanging the cliffs. On the south-facing slopes *Z. purpuralis* was common, also *Z. filipendulae* imagines and pupae, and a single *Setina irrorella* (Linnaeus).

On the 25th we were irresistably drawn back to the *purpuralis* locality we had visited on the 23rd. The moth was just as common, but nearly all of them were worn and we found fewer varieties. They were still crawling over each other on the flowers, desperately seeking nectar and an unmated partner. Their clambering over each other was slow and deliberate, and each group looked for all the world like a bacchanalian orgy in a geriatric home. It was little wonder that they became worn so quickly and we were tremendously lucky to have found them so fresh only two days earlier. Later that day we searched and beat heather near Carbost, finding larvae of *Lasiocampa quercus callunae* (Palmer), *Entephria caesiata* (D. & S.), *Eulithis testata* (Linnaeus), *Chloroclysta truncata* (Hufnagel)—or ? *concinata* (Stephens)—, *O. brumata*, *A. grossulariata*, *E. atomaria*, and *A. caledoniana*.

On the morning of the 26th, M.W.H. seemingly needing exercise climbed Glamaig, one of the Red Cuillins, and took a single *Catopria furcatellus* (Zetterstedt) near the summit. In the afternoon we went to Glenbrittle and explored the north side of Loch Brittle. Having crossed the alarmingly insecure suspension bridge over the river we found larvae of *O. gracilis* abundant on bog myrtle, and a few also on meadowsweet on which were larvae of *A. aspersana* as well. Further along the coast *Z. purpuralis* occurred sparingly in the more sheltered undulations of the slopes. *Z. filipendulae* was also present, quite a few *C. truncata*, *Aplocera plagiata scotica* (Richardson), *A. repandata*, and an abundance of *C. bilineata* sitting on the rocks. Sitting is probably not the right term to use, perhaps "poised for take-off" would be more appropriate, because all the last four species dashed away rapidly at our very approach before we even had a chance to tap the rocks. Strategy and stealth were the order of the day if any were to be netted at all.

The 27th was our last full day on Skye, and we decided to travel again to Glenbrittle, follow the south coast of Loch Brittle, round the point at Rubh' an Dunain and then follow the south-facing coast looking across to the Isle of Soay; finally striking inland and back to Glenbrittle. It was a superb day and we ate our packed lunch at Rubh' an Dunain watching gannets fishing, and having a magnificent panoramic view from South Uist and Barra to the far right, then round to Canna, Rum, Eigg, and the mountains of Arisaig in the distance to the left. On this walk *Z. filipendulae* was more common than we had found it elsewhere, and there were some obviously well-established colonies of *Z. purpuralis* on the coast of the Sound of Soay where it has not apparently been recorded previously. The moth was abundant in some of the coves, but we found no variation from the norm. A patch of *Salix repens* produced larvae of *Acleris hastiana* (Linnaeus), and one larva of *Caloptilia stigmatella* (Fabricius); and the creeping juniper surrendered large numbers of *T. cognata* larvae, most of which were full-fed. Butterflies were plentiful, and apart from those mentioned earlier we found a few *Coenonympha tullia scotica* (Staudinger). Moths seen that day were *Colostygia pectinataria* (Knoch), *Perizoma blandiata* (D. & S.), *Bactria lancealana* (Hübner), *Crambus pascuella* (Linnaeus), *Crambus perlella* (Scopoli), *Scoparia arundinata* (Thunberg), *Pyrausta cespitalis* (D. & S.), as well as many of those recorded earlier.

Over the period of our stay on Skye the MV trap produced the following species: *Rhigognostis senilella* (Zetterstedt), *E. cana*, *S. ternata*, *X. designata*, *Xanthorhoe munitata* (Hübner), *X. montanata*, *Xanthorhoe fluctuata* (Linnaeus), *Cosmorhoe ocellata* (Linnaeus), *C. salicata*, *C. pectinataria*, *P. blandiata*, *Eupithecia nanata* (Hübner), *A. repandata*, *Gnophos obfuscatus* (D. & S.), *Dyscia fagaria* (Thunberg), *Laothoe populi* (Linnaeus), *Ochropleura plecta* (Linnaeus), *Standfussiana lucerneae* (Linnaeus), *Lycophotia porphyrea* (D. & S.), *Diarsia mendica* (Fabricius), *Diarsia brunnea* (D. & S.), *D. rubi*, *Hada nana* (Hufnagel), *Lacanobia oleracea* (Linnaeus), *Ceramica pisi* (Linnaeus), *Mythimna impura* (Hübner), *Blepharita adusta* (Esper), *Acronycta menyanthidis* (Esper), *Acronycta rumicis* (Linnaeus), *Rusina ferruginea* (Esper), *Apamea crenata* (Hufnagel), *Apamea remissa* (Hübner), *Caradrina clavipalpis* (Scopoli), *Colocasia coryli* (Linnaeus), and *Abrostola triplasia* (Linnaeus).

Sadly we left on the 28th, but before driving to Kyleakin decided to search the willow bushes between Sligachan and Portree. Of the many larvae found by far the majority produced *Epinotia cruciana* (Linnaeus), but there were several fine *A. hastiana*, and a single *Epinotia crenana* (Hübner) which is quite a rarity.

Having crossed to the mainland we broke the southward journey at Loch Arkaig in the hope of finding *Perizoma taeniata* (Stephens). No sooner was the journey broken than so was the right wrist of M.W.H. who fell on some wooden steps, one of which was rotten and gave way under his weight. There followed

an uncomfortable bumpy drive to Fort William along a single-track road. At one stage we had to pull off the road to allow a funeral cortege to pass. It seemed an endless caravan of cars following the hearse, and we truly felt in the mood to join in the wake—in retrospect it was hilarious in a macabre sort of way. However we eventually reached the hospital, plaster-of-paris was applied, and the carnival was over bar the drive back to rainy England.

Acknowledgements

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The Rise and Fall of the Pincushion

By RONALD S. WILKINSON, Ph.D., F.L.S., F.R.E.S.

The Library of Congress, Washington, D.C. 20540

Many items of entomological paraphernalia have enjoyed a temporary vogue before being relegated to oblivion, or at least the sole attention of those historians who are interested in the development of instrumentation as well as the more frequently studied aspects of the history of the biological sciences. Among the more curious of a number of utilitarian objects pressed into service by our naturalist ancestors when collecting insects was the humble household pincushion, an unlikely accoutrement which, curiously enough, enjoyed a vogue of well over several centuries. The story of the pincushion is quite naturally linked to the use of pins as devices for securing insects, both in the field and for final mounting in cabinets.

Sources for collecting methods prior to the mid-seventeenth century are unfortunately so vague that, quite frankly, we do not know when the now common entomological pinning technique was first used in preparing insects for collections. Of course the problem is compounded because only a few small insect collections survive from the seventeenth century, and at least none of those which I have examined are mounted on pins. However, we know that John Ray, one of the founders of modern botany and also one of the several most important figures in seventeenth-century English entomology, mounted his specimens on pins and kept them in store-boxes when accumulating the data for his *Historia Insectorum* (1710), published posthumously, and it would appear from contemporary manu-

script evidence that his friend and collaborator Samuel Dale adopted the same method. James Petiver, whose quite significant early entomological collections were made separately despite a fruitful exchange of information with Ray, mounted his specimens on pins, as did William Courten, also a contemporary (Wilkinson, 1966).

As for the pincushion, the first known mention of it is in one of Petiver's letters. He explained to a friend in 1696 that "When Occasion gives me leave & Fair weather presents I visitt the neighboring Feilds, Woods, Hills & Rivers thus accoutred [:] I take with me my Pincushion fully stuck with pins of severall sizes, a long Box for Insects with 2 or 3 Smaller for wt odd things may come in my way" (Petiver to Samuel Brown, undated [1696], Sloane MS. 3332, British Library ff. 112r.-113r.). The method of impaling many sorts of insects with pins upon capture and for permanent preservation became standardised, and our earliest evidence for this is near the end of the seventeenth century, although it may be noted that Petiver himself abandoned mounting specimens on pins, evidently due to the ravages of pests, and adopted the curious alternative of preserving his insects in mica or glass "sandwiches" sealed by glued paper or wood frames (Wilkinson, 1969a). Interestingly enough, Petiver's method defeated the ravages of time and many of his later specimens still remain in the collections of the British Museum (Natural History), while the pin-mounted collections of his contemporaries have been lost. It is probable that a number of early eighteenth-century naturalists continued to mount their insect collections in books in the same way as their herbaria, according to the earlier method exemplified by the volumes of Leonard Plukenet and Adam Buddle in the British Museum (Natural History), but the pincushion eventually won the field.

The standard English sources for entomological methods in the eighteenth century mentioned pins and the pincushion as necessary implements. Eleazar Albin, who retained the use of pins and store-boxes, was wise enough to develop ways of discouraging museum pests (Albin, 1720; Wilkinson, 1966). Benjamin Wilkes, in his sheet of collecting directions probably issued in 1742, advised the collector to be "provided with a Pin-cushion, well stock'd with different Sorts of Pins", for he recommended pinning Lepidoptera upon capture and transporting them in collecting boxes. In his *The English Moths and Butterflies* [1747-50], the same suggestion was made. The most influential English work on the Lepidoptera to be printed in the eighteenth century, Moses Harris' *The Aurelian* ([1758-] 66), advised that the entomologist "must take with him a Pincushion well supply'd with Pins of different Sizes, for the different Sizes of Insects, which may be taken", and that he should "be careful not to stick a small Fly or Moth, with two large a Pin, which will certainly destroy it, by putting the Joints of the Wings out of place, for such Insects as are disjointed, will never set well, and fall to pieces in a short Time". Curtis (1771) did little

but paraphrase earlier instructions by directing that the collector was to carry a "pin-cushion well stored with pins of various sizes".

Early nineteenth-century entomologists sallied forth with the pincushion to their collecting localities. The editions of Abel Ingpen's very popular manual warned that "the collector should never fail to take out a cushion filled with pins of various sizes" (Ingpen, 1826, 1839). There was some choice as to where the pincushion should be carried; Edward Newman, one of the arbiters of entomology in Victorian England, recommended when discussing collecting dress that "sewed into the stuff of the coat", inside the left breast, "should be a large pincushion, containing two or three different sizes of pins, so arranged, in three columns, that the hand might at once take of either kind without the assistance of the eye to direct it" (Newman, 1841). On the other hand, the naturalist William Swainson (1840) suggested in his own well-known work on taxidermy and zoological collecting that "a large assortment of pins" was requisite for insects, and that they might "be stuck upon a pincushion suspended round the neck or at the button-hole". William Kirby and William Spence, authors of perhaps the most widely respected general work on entomology in the first half of the nineteenth century, did not express a preference in the volume of their work which contained the section which they wrote on the collection of insects (1826), recommending only that the collector's pincushion be "well stored with lace-pins of various magnitudes and lengths".

The pins which our entomological forbears carried in their pincushions merit a separate study to themselves, for their evolution is traceable from considerable evidence. It can only be said here that common pins, used in sewing and related activities, were used for well over a century in England, the length and diameter of the pin being tailored to the size of the insect. By the second quarter of the nineteenth century the well-known difficulties attendant to common pins, which every youthful entomologist now very soon learns to his regret, led authors of entomological books to direct their readers to specific dealers where corrosion-resistant pins of various sorts could be obtained. Specially produced entomological pins were eventually stocked in nineteenth-century British shops catering to naturalists, and especially designed pins of standard length but of varying diameter were employed for entomological purposes on the Continent. As we know, Continental pins of this sort were eventually adopted by American entomologists, and are used today, although English entomologists still employ natively produced resistant pins of differing diameters and lengths.

The pincushion appears never to have become a widely used implement in America, but an American literature explaining the nature of collecting equipment did not develop in the earlier nineteenth century to compare with the plethora of transmarine publications, and surely we must imagine inves-

tigators such as John Abbot carrying their pincushions into the field, although there is little evidence to decide the fact. Later nineteenth-century publications do not mention the pincushion in England or America, and we must suppose that it became "old-fashioned" in the same way as the once widely used clap-net gave way to the Continental bag-net, which we use today. The pincushion was discarded for other ways of carrying pins in the field, that is, the boxes or tubes with which we are now familiar.

On the other hand, we do not know how long the pincushion actually survived in England. Entomologists, as well as other persons, do not always discard the ways learned in their youth, and R. L. E. Ford (1963) has demonstrated the surprisingly late survival of early collecting techniques by his discovery of a photograph showing the ancient clap-net in use *circa* 1900. In some ways, the historian of entomology is like the folklorist who often discovers survivals of an earlier age, and even today, it is interesting to search the catalogues of such traditional naturalists' suppliers as Watkins and Doncaster to discover "entomological survivals", or at least the obvious descendants of very old devices.

In 1966, during a residence in England, the author visited one of the oldest of English entomologists, Percy Cue (he died at the age of 94 in 1971). Mr. Cue could not remember any use of the pincushion in his youth (although he recalled many long-disappeared items of collecting equipment), and averred from his early conversations with entomologists that the pincushion had disappeared in England during the mid-Victorian era. This was not so on the Continent, where a very specialised form of the pincushion developed during the nineteenth century. The French entomologist of mid-century had his *pelote de chasse*, which like Swainson he suspended from the buttonhole of his coat. One of the standard Gallic guides for lepidopterists (Rothschild, 1880) noted that "on pique ordinairement les epingles sur une petite pelote faite de deux disques de carton recouverts d'etoffe et relies entre eux par un fort ruban qui en forme la tranche. . . . C'est sur ce ruban que se piquent les epingles, et l'on peut remplir le vide entre les deux cartons avec de la sciure de bois ou du son. Pour plus de commodite, on peut suspendre cette pelote a la boutonniere par un cordon, afin d'avoir toujours sous la main les epingles dont on peut avoir besoin".

A variant of the *pelote*, with its accompaniment of pins, is illustrated on the back cover of the Fall-Winter, 1969 issue of *The Michigan Entomologist* (Vol. 2, Nos. 3-4); the illustration is taken from Maurice Sand, *Le monde des papillons* (Paris, 1867; Wilkinson, 1969b). By this time the French entomologist had his *boite d'epingles*, or box for differing diameters of pins, but the revised pincushion survived on the Continent for a much longer period. One of the standard guides for French collectors toward the end of the century was Albert Granger's *Guide de l'amateur d'insectes* (see, for example, the edition of 1890), in which it was noted that "les Entomologistes prefer-

ent generalement la pelote; elle est ronde et composee de deux morceaux de carton recouverts de soie verte et relies par un ruban sur lequel on pique les epingles; en excursion on la suspend a la boutonniere" (Granger, 1890). The various editions of this book had a considerable effect on practices in French amateur entomology, and the *pelote* appears in various French catalogues issued by naturalists' suppliers at the end of the century. As late as the 1920's the *pelote* was used by elder entomologists in France, as testified by the author's father, who although not an entomologist collected plants in several provinces. By then the *pelote* was an anachronism, and it was surely on the Continent (although its history in Germanic countries has not been traced here) that the pincushion ended its tradition of at least two hundred and thirty years as a desirable item of entomological collecting equipment.

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HYDROPHILUS PICEUS L. (COL.: HYDROPHILIDAE) IN MONMOUTH. — Whilst collecting beetles at Magor Marsh on 8th March, 1975 a male specimen of *Hydrophilus piceus* was netted in one of the ditches surrounding the marsh. Because of the scarcity of this insect in Wales I feel the fact should be recorded. According to Frank Balfour-Browne's book *Water Beetles and Other Things* there exists an old record of the insect being taken at Crwmllyn Bog area in Glamorgan in 1829 and, more recently, a specimen from a brackish ditch near Rumney, Monmouth, in 1949. — M. J. LEECH, Yew Tree Cottage, Bromsash, Ross-on-Wye, Herefordshire, HR9 7PN, 10.iii.1975.

A Further Note on *Cosmetopus dentimanus* Zetterstedt (Diptera: Scatophagidae)

By P. J. CHANDLER

Weston Research Laboratories, 644 Bath Road, Taplow,
Maidenhead, Berks.

and A. E. STUBBS

91 Clitherow Avenue, Hanwell, London, W.7

In the recent paper adding this species to the British list (Chandler & Stubbs, 1974) we stated that the discovery of males would be desirable to confirm beyond doubt the identity of the insect.

This has now, surprisingly soon after the aforesaid publication, been achieved. On 29th June, 1974 a single male was observed by one of us (P.J.C.) when it was running slowly up the underside of an isolated willow (*Salix* species) branch overhanging a backwater of the River Test, about five feet above the surface of the water close to the bank. The actual situation was on Beat 12 of the Leckford Estate, about half-a-mile from the location of the previous captures of the species but on the same watercourse. Half an hour's vigorous searching in the vicinity failed to reveal any more examples. The capture of a male on this date might suggest a later season for the species in 1974 than was the case in 1970 and 1971 when females were obtained on 21st June and 4th July respectively.

Mr. H. Andersson of Lund published (1974) simultaneously with our paper a revision of the North European species of *Cosmetopus*, in which he illustrated diagnostic features in the male genitalia for three species, one of them described as new. Dissection of our male has confirmed that it belongs to *C. dentimanus* Zetterstedt, which Andersson records from several localities in Sweden and Norway; most of these were in northern districts but one record was from south Sweden. Apart from genitalic differences, the other two species have long narrow palpi with an enlarged apical disc, while the palpi of *dentimanus* are more evenly strap-shaped. There should, therefore, be no difficulty in recognising them as distinct, should they turn up here.

As mentioned in our previous paper, the male fly is figured by Séguy (1952). It resembles the female in size and colouration but the abdomen is proportionately longer, more slender at the base and widening apically into a club-shape owing to the large hypogygium. The palpi are more developed, being slightly longer than the proboscis and entirely black while in the females they are only a little over half as long and paler at least basally. The other secondary sexual character, which we referred to before, is the structure of the front legs. The femora are basally strongly thickened in both sexes but in the male there are a short pair of thick blunt teeth centrally situated on the ventral surface and a corresponding deep notch on the tibia. There is a protuberance below this notch and a longer double undulated one above; these bear rows of closely set short black

spinules, interrupted at the notch, which are also present in the female but in that case forming a complete ventral row on all but the basal fifth of the tibia.

Acknowledgements

Once again we wish to thank the administrators of the Leckford Estate for facilitating our collecting visits there. The fly which is the subject of this note was collected on one of the angler's preserves where we were enabled to collect for the first time on this date through the kindness of Cdr. W. L. R. E. Gilchrist.

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A New Species of *Gynacantha* Rambur, 1842 (Odonata: Aeshnidae) from India

By TRIDIB RANJAN MITRA and A. R. LAHIRI
 Entomology Laboratory, Department of Zoology,
 University of Calcutta
*Gynacantha rammohani*¹ sp. nov.

Head: Large globular. Labium yellowish white. Labrum yellow with a brownish band across its base, rest pale olivaceous. Postclypeus and frons brownish yellow, anteclypeus bluish; a black T-shaped mark on the roof of the frons. Eyes darker than the labrum. Occiput yellow, nearly obsolete and triangular, black behind.

Thorax: Prothorax yellow, a brown mark lying middorsally on the middle and posterior lobes. The posterior lobe is fringed with hairs. Pterothorax brown, ventrolateral sides olivaceous. Dorsal carina black, a blackish brown humeral stripe. Legs short brown; fore femora black, other femora brown with apices black; all tibiae brownish. Hind femora with two rows of short closely set spines on the ventrolateral margin. Wings: whole area of both wings enfumed with opalescent white. Indistinct brown marking at the base of both wings, but it is slightly more extended in hind wings. Membrane greyish obsolete. Pterostigma pale yellow, extending over four cells in both wings. The pterostigma of fore wing is bigger than that of the hind

19-27 28-20
 wing. Nodal index ——— / ———. Discoidal cell elongate,
 20-21 20-21

¹ The species has been named in honour of Raja Ram Mohan Roy (1772-1833) for his sincere advocacy (1831) in the formation of Supra National Organisation for settling all disputes among nations and for furthering the cause of peace in the world.

elongate, narrow of similar shape and size in both fore and hind wings; distal side sinuous, basal side situated well, distal to the level of arc. Discoidal cell of fore wings and right hind wing seven celled and of left hind wing six celled. Hypertrigones traversed six times in the right fore wing and left hind wing, seven times in left fore wing and right hind wing. Thirteen cells in the anal loop. IR_3 forked, a little proximal to the base of pterostigma and with three rows of cells between IR_3 and $RSpl$. One row of cells between the origines of Cu_2 and IA in hind wings. Eight cubital nervures in wings, except the right hind wing where there are seven. Basal space entire.

Abdomen: Slightly constricted at the segment three, olivaceous and marked with brown to blackish brown patches as follows: Segment 1 with a triangular mark, jugal sutures of the segments 2-7 brown but bordered with olivaceous yellow; triangular light brown marks on the apices of the segments 4-6; a broad blackish brown fascia running laterally on segments 3-7.

Genitalia: The ventral surface of the tenth abdominal segment produced to prominent divaricate forks; the styles are somewhat straight and provided with hairs at the tip.

Measurements (in mm.): Forewing=45.1; Hind wing=45.0; Abdomen=47.3; Pterostigma of fore wing=3.1; Pterostigma of hind wing=2.6.

Type specimen: Holotype: 1 adult ♀, Calcutta, Coll. T. K. Datta, 10.VIII.1969 at 10 p.m., near electric lamp inside the residence. Temporarily deposited in the zoological collections of the Department of Zoology, Calcutta University, later on it will be deposited in the collections of Zoological Survey of India.

Relationship with other species: The species differs from *Acanthagyna dravida* (Lieftinck, 1960) in its colour of labrum, post clypeus and frons, marking on the prothorax and the venation. It can be distinguished from the other species of the genus by the nervures traversing the discoidal cells and hypertrigones. Dr. D. E. Kimmins, formerly in the British Museum (Nat. Hist.), could not fit it with any known species of the genus.

Acknowledgements

The authors are thankful to Prof. D. N. Ganguly, Head of the Department of Zoology, Calcutta University, for facilities; to Dr. D. N. Ray Chaudhuri of the same department, for guidance; and to Dr. D. E. Kimmins, formerly in the British Museum (Nat. Hist.), London, for his kind help in comparing the specimen.

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A Key to Males of the British Species of *Neocnemodon* Goffe (Dipt.: Syrphidae)

By M. C. D. SPEIGHT

Conservation and Wildlife Section, Department of Lands,
Merrion Square, Dublin, 2

and K. G. V. SMITH

Department of Entomology, British Museum (Nat. Hist.),
London, S.W.7

In 1955 Delucchi and Pschorn-Walcher carried out a revision of the known European species of the hover-fly genus *Neocnemodon* Goffe 1944 (as *Cnemodon* Egger, 1865, pre-occupied by Schoenherr, 1823). They disentangled a mass of misinterpretations of the various *Neocnemodon* species in the process. Some of the greatest confusion surrounded *Cnemodon vitripennis* Mg., the type of which has disappeared. They found two species confused under *vitripennis*, neither of which could be satisfactorily singled out as the original Meigen species. Because neither species had an alternative name definitely applicable to it, Delucchi and Pschorn-Walcher described both species as new, relegating *vitripennis* to the rank of *nomen dubium*. Collin (1960) noted the occurrence of both the Delucchi and Pschorn-Walcher species in Britain, but recognised only one of them (*N. pubescens*) as a new species, using the name *C. vitripennis* Mg. for the other (*N. dreyfusiae*) and we follow this usage here, rather than leave Meigen's name in limbo and open to continued misinterpretation. Bankowska (1962) also follows Collin's example, though her illustrations suggest that her specimens of "*vitripennis*" Mg. were *N. pubescens* rather than *N. dreyfusiae*.

In the current situation Coe's (1953) key to the species of *Neocnemodon* is usable, and when Collin recorded *N. pubescens* from the British Isles he gave insufficient information to distinguish the species from *N. vitripennis* (= *N. dreyfusiae* D. & P.-W.). At present then, the *Neocnemodon* species occurring in the British Isles can only be identified using the key constructed by Delucchi and Pschorn-Walcher. A translation of that key is provided here, somewhat modified. All the species keyed by Delucchi and Pschorn-Walcher are included, since it seems likely that there are *Neocnemodon* species in the British Isles in addition to those we know of at the moment. A further species, *N. micans* (Doesburg), should perhaps be incorporated into the key, but has not been due to lack of information. This species was regarded as a synonym of *N. brevidens* (Egg.) by Delucchi and Pschorn-Walcher, but Van Doesburg (1958) contests this. If Van Doesburg is correct, *N. micans* would probably key out to *N. brevidens* in the following key, but would be distinguished from it by its violet colouration (*N. brevidens* is blackish) and black tibial hairs (whitish in *N. brevidens*).

This key is to the males only, since the females of all the species cannot be distinguished at present. Males of

Neocnemodon possess spurs in the middle and hind coxae and hind trochanters, a feature which distinguishes them from species in allied genera.

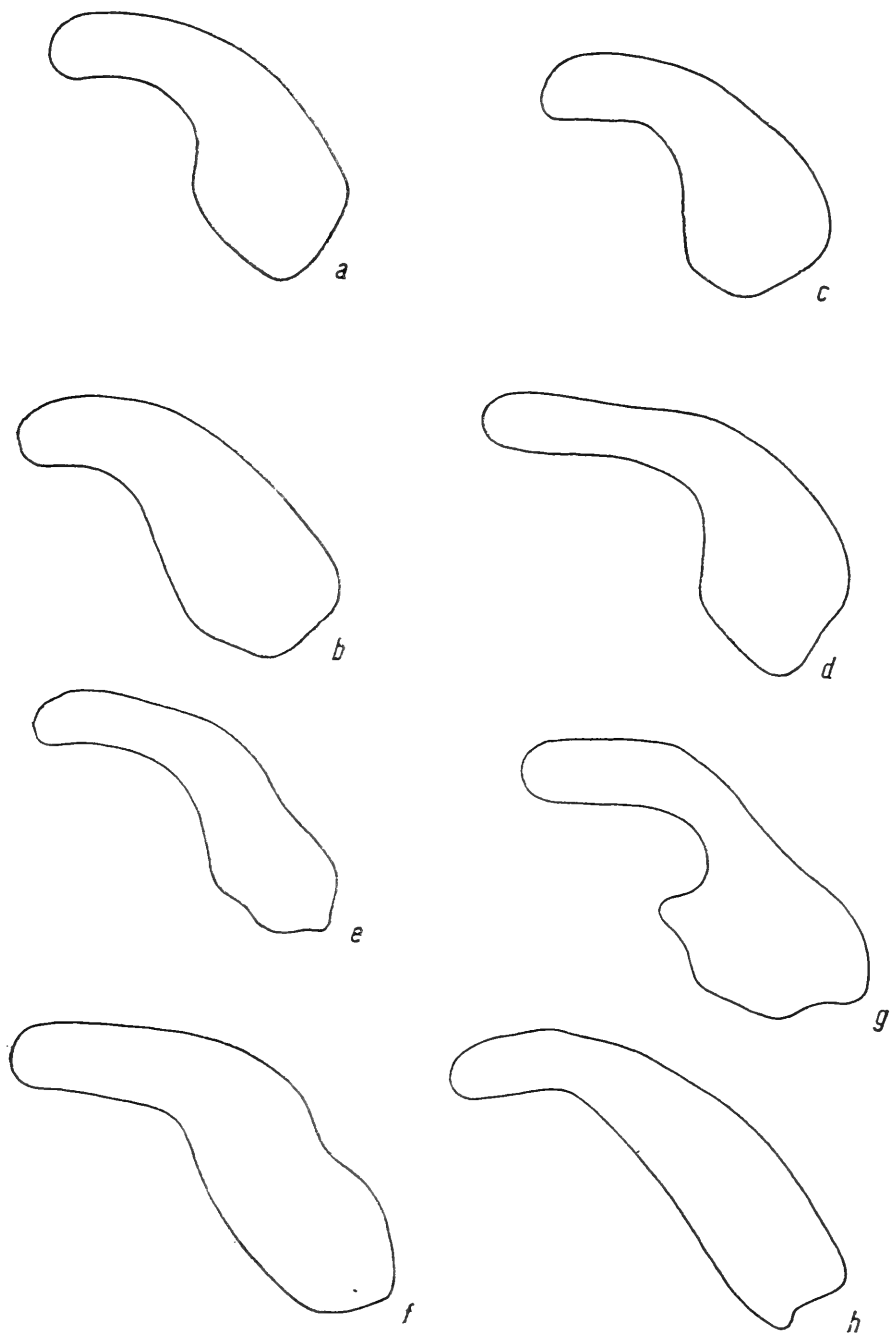


Fig. 1. *Neocnemodon* species: surstyli (styli, external forceps or claspers of other authors) of genitalia: a-c, *pubescens* from three different specimens; d, *N. vitripennis* (= *dreyfusiae*); e, *N. fulvimanus*; f, *N. latitarsis*; g, *N. brevidens*; h, *N. verrucula* (a-d original, e-h from Delucchi and Pschorn-Walcher, 1955).

Key to the *Neocnemodon* Spp. Occurring in North-Western Europe

- 1 Third abdominal sternite with a definite median protuberance, which is either rounded or keel-like 2
- Third abdominal sternite without protuberance 3
- 2 Front basitarsus much expanded, so that it is obviously (ca. x 2) wider than succeeding segments; middle tibiae with a large swelling anteriorly, beyond the middle; second abdominal sternite covered in long hairs, basally; surstyli (terminal claspers) genitalia as in Fig. 1,f (known from scattered locations throughout the British Isles) *latitarsis* (Egg.)
- Front basitarsus normal (unexpanded); middle tibiae moderately expanded after middle; second abdominal sternite with sparse, short hairs; surstyli as in Fig. 1,e (not known from the British Isles) *fulvimanus* (Zett.)
- 3 Fourth abdominal sternite with a small tubercle just behind the middle; front basitarsus simple; surstyli long, abruptly angled distally (see Fig. 1,h) (from southern England to lowland Scotland in the British Isles) *verrucula* (Coll.)
- Fourth abdominal sternite with no protuberance; front basitarsus with a visible excavation or flap-like, chitinous projection, or both; surstyli shorter, curved distally rather than angled 4
- 4 Front basitarsus with a hollow on the inner side and middle basitarsus somewhat flattened; face predominantly black-haired; median vein of wing pilose for most of its length 5
- Front basitarsus with a flap-like projection about half-way along and middle basitarsus notched behind; tubercle on middle tibiae with short black bristles; median vein of wing almost bare; face nearly all whitish haired; surstyli as in Fig. 1,g (not British; Central and Southern Europe) *brevidens* (Egg.)
- 5 Surstyli as in Fig. 1,d, long and strongly curved, curvature beginning at about middle; hairs of thoracic dorsum predominantly whitish (Great Britain N. to Aberdeenshire in the British Isles ... *vitripennis* (Mg.) *sensu* Collin (1960) (= *dreyfusiae* D. & P.-W.)
- Surstyli as in Fig. 1,a-c, shorter and less curved, curvature beginning beyond middle; hairs of thoracic dorsum mostly black (known in the British Isles only from S. & E. England) *pubescens* (D. & P.-W.)

Neocnemodon species are typically encountered as adults in woodland clearings, glades and rides, where they frequent the flowers of plants like *Euphorbia amygdaloides* L. and *Potentilla erecta* (L.) in May/June. The known larvae are apparently arboreal, feeding on Adelgids (see Delucchi and Pschorn-Walcher 1957). The four species recorded in the British

Isles are known from scattered localities throughout Great Britain, with the exception of *N. pubescens*, which has to date been recorded only from Cambridge and Suffolk. Dorset can be added to the range of this species as follows: Bere Woods (SY.87/94), ♂ 12.v.63, 2 ♂ 9.v.65, ♂ 20.v.67, ♀ 12.v.63 (Speight coll.). Only *Neocnemodon latitarsis* is known from Ireland (see Speight *et al.*, in press).

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Some Subspecific and Infrasubspecific Names in *Pieris napi* L. (Lep.: Pieridae)

By S. R. BOWDEN

53 Crouch Hall Lane, Redbourn, Herts.

The names of the yellow forms in British and Irish *Pieris napi* L. caused difficulty for years. Most of the more recent trouble dates from a note by J. A. Thompson (1952), or rather from E. A. Cockayne's editorial comments.

One group of forms can nowadays be got out of the way quickly: the rare sulphur- or lemon-yellow forms which occur in both sexes and genetically are recessive to wild type. In these yellow extends to the whole disc of the forewing underside. Although several alleles appear to be responsible, and the resulting phenotypes can usually be distinguished in fresh specimens, all are referable to *sulphurea* Schöyen (1885); the names *flava* Cockerell (1889), *hibernica* Schmidt (1913) and *citrona* Frohawk (1928) are synonyms.

Ochreous or tawny-yellow forms of varying depth, always confined to the female, in which the disc of the forewing underside almost invariably remains white, are not to be considered as aberrations. They occur all the time in parts of Ireland and Scotland and examples are easily bred from collected eggs. They are due to genes regularly present in the gene-pool of *P. napi britannica* Verity, as also in the gene-pools of north Scandinavian ssp. *adalwinda* Fruhstorfer and Alpine ssp.

bryoniae Ochsenheimer. The name usually given (e.g. Müller & Kautz 1939), *flava* Kane (1893), is best treated as that of an inconstant character of various populations, not that of a distinct individual aberration.

The alternative name *flavescens* Tutt (1896) employed in Howarth (1973), should be easily disposed of. First, it is probably not a name at all: it is not listed as such in Tutt's index, though "ab. *flava*, n. ab." is in the index and not in the text—these errors are not corrected in the 1905 edition. Tutt prefaced all infraspecific names with either "var." or "ab.", and (when-ever he could) followed them with "n. ab.". The word *flavescens* (in italics) appears, without prefaced "ab.", under "ab. *sulphurea* Schöy.", and (if a name) would be a synonym of *sulphurea* applied to the female only. It is in any event antedated by *flavescens* Bohatsch (1893), the Austrian form characterising the subspecies usually known as *flavescens* Wagner (1903). This was given as an aberration of *P. napi* by Bohatsch; it really belongs to *P. (napi) flavescens* Wagner or a hybrid *bryoniae* population—thus certainly to the *P. napi* superspecies.

Of course, the International Code does not concern itself with infrasubspecific names, so we need not respect priority if the result of doing so is too silly. The application of the priority rule is particularly uncertain when we do not know whether the forms to which apparent synonyms or homonyms apply belong to the same species or not.

The name *flava* Edwards (1881), almost but not quite as untidily given as *flavescens* Tutt, refers to the not uncommon ochreous form of the female of the Californian subspecies *P. (napi) venosa* Scudder, which form is, probably genetically also, close enough to *flava* Kane to be regarded as identical. Some of the doubts expressed by Cockayne (1952) do seem excessive. *P. (n.) venosa* is usually considered conspecific with *P. napi*, though opinions could differ.

Perhaps one may continue to use for the ochreous female forms, where necessary, the quite unambiguous name *flava* Kane. Someone else may be able to decide whether *flava* Edwards is validly named; if so the author can be changed, should *venosa* be held conspecific with *napi*—though I doubt whether it matters very much, *flava* being, as I have said, a character rather than an aberration. But the supposed name *flavescens* Tutt is certainly to be rejected.

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The name *sabellicae* Stephens (1827) appears in Kloet and Hincks' *Check List of British Insects*, 11 (2), 2nd edition 1972, for the subspecies of *Pieris napi* L. occurring in southern England. The history of opinions about this name is given by Müller & Kautz (1939: 79-81).

In J. F. Stephens' *Illustrations of British Entomology, Haustellata*, Vol. 1, pages 20-22, appear:

(1) A description of *Pontia Napi* Linné, which agrees with the English spring form of *Pieris napi*, stated to be not uncommon in all parts in the vicinity of the metropolis.

(2) A description of *Pontia Napaeae* Esper, conjectured to be a large variety of *P. napi*: evidently in fact summer-brood *P. napi*.

(3) *Pontia Sabellicae* Petiver, described as follows:

“Allied to *Po. Napi*, but dissimilar in form, the wings being shorter and more rounded: the anterior being nearly of the form of those of *Po. Cardamines*,—it has the upper surface of all the wings of a yellowish-white, with broad dusky irrorated nervures; broadest towards the hinder margin. . . . Beneath, all the wings are adorned with very broad dusky nervures, resembling those in [one form] of *Po. Napi*, but varying in different specimens; and the dilated nervure on the upper edge of the discoidal cell is destitute of the insulated yellow spot, which every specimen of *Po. Napi* that has passed under my examination possesses. I have long had two specimens of this insect—which agree with . . . the *Bryoniae* of Wallner [!] . . .”

Localities mentioned for *Po. Sabellicae* are Highgate Wood, Ripley and Battersea Fields. Since the description purports to differentiate *sabellicae* from the earlier-described commonly occurring English *napi*, it can hardly be available as the name of the latter, particularly as the distinctive characters mentioned (wing-shape, yellowish-white wing-colour, lack of the hindwing-underside orange streak) in no way characterise the English populations. Indeed the character most essential for Stephens, the wing-shape, is merely teratological. The survival of two Stephens specimens (labelled *sabellicae* by a later worker) would hardly affect the situation whether they agreed with the description or not; in fact the specimens in the British Museum (Nat. Hist.) do lack the orange lunule but in other respects conflict with the description.

The name *sabellicae* belongs to a figment which does not exist as a taxon: I am not the first to reach this conclusion. To put the case in general terms, we have an author recognising a previously known species *A. a.* and differentiating from it by description a sympatric supposed species *A. b.* It is illogical then to transfer the name *b.* to be that of the *A. a.* subspecies, when *A. b.* is found to represent only an indefinite chance combination of aberrant infrasubspecific characters.

Priority plus locality are not always enough to justify the use of a name for a subspecies, even when it is 150 years old. It is not to be maintained that anyone setting up a subspecies should use for it the name of the earliest published aberration from the area concerned, disregarding the author's intention and suppressing the inconvenient parts of his original description. Such a procedure would make *hibernica* Schmidt 1913 and (perhaps) *flava* Kane 1893 available for the Irish subspecies of *P. napi* (ssp. *britannica* Verity 1911).

No. We should revert to the unambiguous name *septentrionalis* Verity (1916, type-locality Westcliff-on-Sea) for the *P. napi* subspecies which inhabits southern England.

Acknowledgements

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Roosting Behaviour of the Butterfly *Papilio demodocus* Esp. on the Kenya Coast

By DIANNE O. GIBSON, B.Sc. and A. L. PANCHEN, M.A., Ph.D.
Department of Zoology, The University,
Newcastle upon Tyne, NE1 7RU

We here give an account of a nightly roosting area of the common African tailless "swallowtail" *Papilio demodocus* which we were able to observe between 12th and 22nd August, 1974. The roost was situated on the Watamu Beach—Mida Creek road, near the village of Watamu, about 20 km. south-west of Malindi on the Kenya coast. The Mida Creek road is parallel to the shore and runs N.E.-S.W. It is separated from the shore by a row of houses each situated in a large garden usually with shrubs and trees and each designated a "plot".

The roosting area lay immediately beside the beginning of the drive to one of the plots under an area of trees separated from the road by a wide grass verge also with a few trees. The

ground of the roosting area was covered by a large patch of herbaceous plants of the genus *Justicia* (Acanthaceae) bearing pale lilac-coloured flowers. These plants acted as the actual roost. Also within the roosting area there was a small area where domestic rubbish had been dumped. Rotting fruit on this dump was visited by male and female *Hypolimnys misippus* (Nymphalidae) but not to our knowledge by *P. demodocus*.

Originally a group of seven or eight individual butterflies, all *P. demodocus*, was seen hovering round and attempting to settle on a single *Justicia* plant about a metre high. This was at about 5.0 p.m. and thus about $1\frac{1}{2}$ hours before sunset. Between 12th and 16th August a similar group of butterflies was to be seen round the same or a closely adjoining plant at any time at or after 5.0 p.m. Individual butterflies might also be observed settling on other *Justicia* plants, all of which were about the same height.

The original mass roost was only three or four metres from the front edge of the *Justicia* patch (that nearest the road). On the evening of the 16th August, however, the original plant or plants was untenanted but a second roost, possibly containing some at least of the original individuals was seen some four or five metres further into the patch under heavier tree cover. The mass roost remained at this site until the morning of 20th August.

From the morning of 20th August to that of 22nd August it was possible to visit the site at dawn, about 6.15 a.m., each day and to mark individual butterflies to discover whether they returned to the roost on subsequent days. In all eight specimens were marked, four on the morning of 20th August, two the same evening and two on the morning of 21st. In addition six specimens were captured and released after their sex and condition had been noted on the final day, 22nd August.

Of the eight specimens marked only three, all marked on the morning of the 20th, were recaptured: it seems that our visits to the roost both before and after the night of the 20th disrupted it somewhat hence the small numbers (two each) marked on those occasions, none of which was recaptured. By the morning of the 22nd, however, the roosting site was again fully tenanted.

Of the three specimens recaptured, one, an old specimen with torn hind wings, was marked and released near the second (back) roosting position referred to above. It was recaptured twice but on both occasions was resting near the front of the roost near, but to the left (N.E.), of the original roost plant. The first recapture was on the evening of the 20th, the second on the morning of the 22nd at a station outside the tree covered area. The second recaptured specimen, with beak marks on left fore and hind wings, was also recaptured at this station at the same time, having been marked and released at a point nearby but just under the tree cover. The third recaptured

specimen was also marked and released at this latter point and recaptured a few yards to the right on the morning of the 21st, the only specimen recaptured at that time. It was freshly emerged at capture.

Perhaps the most remarkable feature of all the specimens captured and released at the roosting site, fourteen in all, is that every one of them was a male. Thus we do not know that any female took part in the mass roosting behaviour, but it seems improbable. There seems to have been no correlation between success or failure in recapture and the age and condition of the marked butterflies.

Under normal circumstances the behaviour of the butterflies was similar every evening. Up to a dozen butterflies would jostle for position on a single plant. Those that were displaced or could not gain a foothold would fly away, and, if continually unsuccessful, settle singly. The only apparent attraction of the communal roosting plant was the presence of other individuals.

About a week after leaving Watamu we had the opportunity on two evenings (the 1st and 2nd September) to observe closely similar behaviour in the danaid butterfly *Amauris niavius* in the Moshi Forest near Kilimanjaro, Tanzania. In this case communal roosting took place on horizontal twigs or branches at or near ground level on the banks on either side of a forest road.

Notes and Observations

THE FERAL FOODPLANT OF LEAST CARPET, *IDAEA VULPINARIA* HERRICH-SCHAFER. — Mr. West is much to be congratulated on his discovery of feral larvae of this species, with *Alyssum saxatile* L. as their foodplant (*Ent. Rec.*, 86:258). But in solving one mystery he has uncovered another. This plant, which is popularly known as Golden Alyssum, is not, according to the usual authorities, a British native but only at most an occasional garden escape. Records of *Idaea vulpinaria* in Kent —actually near Bexley and Eltham—go back to 1831, when *A. saxatile* must have been very uncommon even if it had been introduced at all. The recorded spread of the moth southwards in Kent and most recently into Surrey may indeed well be due to its adoption of this now common suburban rockery plant as a foodplant; but surely it must have used something else in earlier times. The early association with *Ulmus campestris* is well attested, and the narrow lane at Slade Green, where I found the moth in abundance at rest on elm leaves on 4th August, 1954, was according to my recollection a most unlikely place for any growth of *A. saxatile*: there was, indeed, little in sight except overgrown elm hedges and nettles! But, given the later onset of Dutch elm disease, the species was no doubt wise to find an alternative foodplant. — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Guildford, Surrey, GU5 0LE.

ANARTA MELANOPA (THUNBERG) (LEP.: HADENINAE) IN NORTHUMBERLAND. — On the afternoon of 12th June, 1974, a single male was taken in flight over vegetation dominated by *Empetrum nigrum* L., on Cheviot Hill. Dr. Long of the Hancock Museum, Newcastle upon Tyne, tells us that several were seen in flight on Cheviot, some time during the early 1950s, by Lieut. Col. Logan-Home of Duns, Berwickshire, who was unable to catch any and thereby confirm the record.

The only other published record outside Highland Scotland, appears to be from the Southern Uplands, by Ratcliffe (1964, *Entom. mon. Mag.*, **100**: 209).

The example from Cheviot is quite indistinguishable from specimens taken at Rannoch, in the Hancock Museum collections. It would appear unnecessary to collect further specimens. The size and extent of the colony is unknown. The specimen has been donated to the Hancock Museum where it may be viewed.

The recent discovery of *Xestia alpicola* (Zetterstedt) in the Northern Pennines by Withers (1974, *Ent. Gaz.*, **25**: 87-88), suggests that these and other "Highland" lepidoptera could be found elsewhere in Northern England and Southern Scotland. Speculative visits to other sites could prove worthwhile.— B. WALLACE, Department of Plant Biology, The University, Newcastle upon Tyne; and I. D. WALLACE, Department of Invertebrate Zoology, Merseyside County Museums, Liverpool.

Current Literature

Rearing the Hymenoptera Parasitica by K. G. V. Smith.

16 + 13 figs. A.E.S. Leaflet No. 35, 1974. 40p.

Knowledge of hymenoptera parasitica (also diptera parasitica) could be greatly increased if those who breed feral insects were to retain their parasite material with a note of host species, localities and any other available information. The British Museum (Nat. Hist.) is always glad to receive such material.

This useful, well documented pamphlet tells how best to deal with such bred hymenoptera, gives brief particulars of some of the more interesting parasites and an account of the various host orders. A notable feature is the specialised bibliography of nearly 100 references. — J.M.C.-H.

Butterflies by George E. Hyde. 64 pp., 68 coloured and 17 black and white photographs. 9" x 7", paperback. Almark Publishing Co. Ltd., 1974. £1.25.

The most striking feature of this slim volume is its generally high standard of photography and colour reproduction. Another

interesting aspect of the book is that excepting the illustrations of rarer immigrants (which may have been posed), all the coloured photographs are of butterflies in Britain in the wild and on their chosen resting sites.

Although the author wisely gives wing span measurements, the illustrations would have looked better had the publishers reproduced these natural size. For example, compare the diminutive Purple Emperor on page 34 with the enormous Holly Blue on page 42!

The text is authoritative, lucid and informative. However, we suggest the author should have been more explicit over the disadvantages of introducing local species into new localities and have stressed the need for people to consult the Biological Records Centre at Monks Wood before taking such action. Apart from these few strictures though, this is a reasonably priced and decidedly attractive publication. — J.M.C.-H.

The British Oak, Its History and Natural History, edited by M. G. Morris and F. H. Perring. 376 pp., 8 plates and numerous line drawings. E. W. Classey for the Botanical Society of the British Isles, 1974. £6.

This is the report of the 14th Conference of the Botanical Society of the British Isles held at Sussex University in September 1973, and the most comprehensive account ever published of our two native species of oak—the Pedunculate oak, *Quercus robur* L., and the Sessile oak, *Q. petraea* (Mattuschka) Liebl.

There are twenty-one chapters on all aspects of the life and death of these trees. Botanists have written on the taxonomy, cytology, morphology, reproduction, regeneration and productivity, whilst foresters and historians have dealt with the growing of oak and its changing abundance and use down the ages. Biologists of many disciplines have assessed the importance of oak as a habitat for other organisms both plant and animal. There is also a general introduction and details of the Conference's programme, exhibits and excursions.

It is well-known that in Britain more insect species are associated with oak than with any other tree, or indeed with any other plant. Of great interest therefore is M. G. Morris's masterly contribution on *Oak as a habitat for insect life* (pp. 274-297), in which he deals with the subject as under: Oak in its habitat; Structural diversity of the oak tree; The whole tree; Roots; The trunk and larger branches; Twigs; Buds; Catkins; Acorns; Leaves; Macrofungi; Dead and dying wood; Rot-holes; Nests; and lastly, Distribution in time and space. Of particular appeal to entomologists too, are G. Gradwell's *The effect of defoliation on tree growth* (pp. 182-193), and A. Darlington's *The galls of oak* (pp. 274-297).

More than 820 bibliographical references are listed with the various contributions, and the work concludes with a useful general index. — J.M.C.-H.

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A guide to the natural history manuscript resources of the British Isles is being prepared by Gavin Bridson (Librarian, Linnean Society of London, Burlington House, Piccadilly, London, W1V 0LQ) and Anthony P. Harvey (Librarian, Department of Palaeontology, British Museum (Natural History), Cromwell Road, London, SW7 5BD). Relevant libraries, museums and other organisations are being surveyed by means of questionnaire. A particular problem of this survey is the wide scattering of material as shown by its presence in some unlikely locations and many individuals will, through their own researches, have come into contact with such items. They may also know of undocumented items in public and private collections and might be able to contribute valuable information. The compilers will be grateful for, and readily acknowledge, any such information. The results of this survey are to be published by the Bowker Publishing Co. Ltd. in 1975.

EXCHANGES AND WANTS

For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Back numbers.—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

A Survey of the Macrolepidoptera of Croydon and North East Surrey by L. K. and K. G. W. Evans. 133 pp. with 4 plates and detailed area map. Price £1.20 including post/packing. To be obtained from The Secretary, Croydon Natural History and Scientific Society, 96a Brighton Road, South Croydon, Surrey, CR2 6AD.

Wanted. —HYDROPTILIDAE (Trichoptera) Specimens or data from any part of the British Isles. Identification will be provided, if required by the sender. Material to:— Miss J. E. Marshall, Entomological Dept., Natural History Museum, Cromwell Road, South Kensington, London.

Wanted During 1975. — Livestock (ova, larvae or pupa) of *Colias croceus* (Clouded Yellow) and *C. Hyale* (Pale Clouded Yellow).—Please write stating quantity, price, and place of origin, to: D. J. Tolhurst, 13 Armytage Close, Hoo, Rochester, Kent, ME3 9AP.

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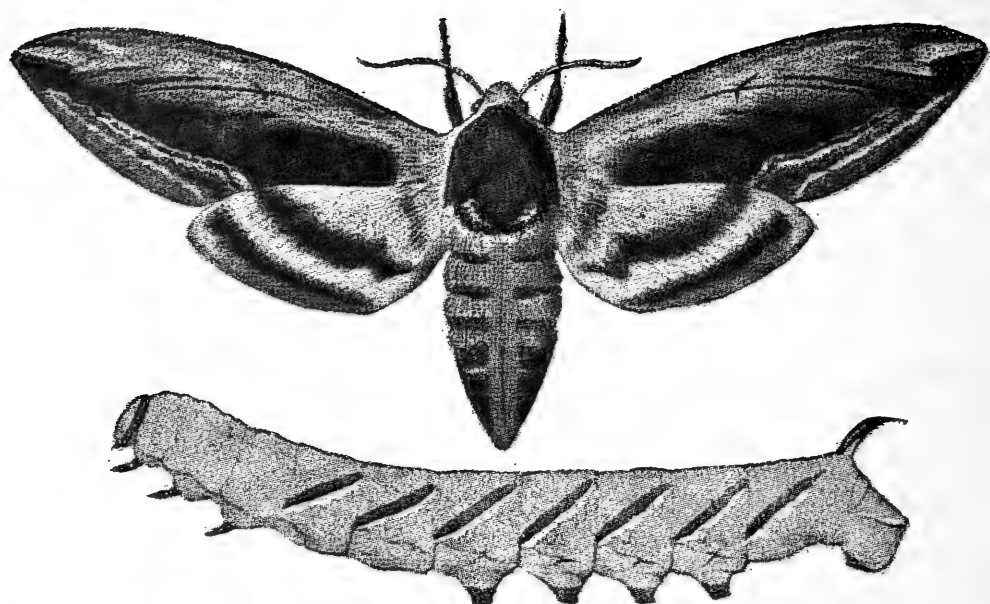
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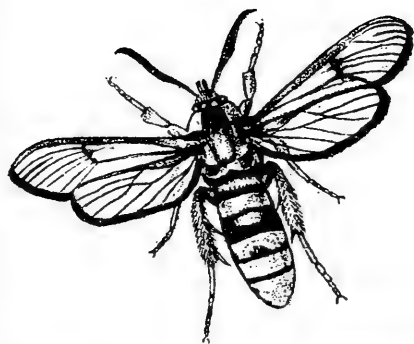
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On the Rumoured Presence of the Large Blue Butterfly (*Maculinea arion* L.) in the Hebrides

By J. L. CAMPBELL

Canna House, Isle of Canna, Scotland, PH44 4RS

In his article in the October 1973 number of the *Record* titled "They were Irish Gannets", Mr. H. C. Huggins refers to a rumour of the presence of the Large Blue in West Cork in 1962, which he and Mr. E. S. A. Baynes laid in 1963. To this the Editor of the *Record* added a footnote mentioning the reference by the late Professor J. W. Heslop Harrison to "the presence on Rhum of such species as the Large Blue (*Maculinea arion*)" in an article on "The Passing of the Ice Age" contributed to *The New Naturalist: A Journal of British Natural History*, published by Collins in 1948 (p. 89), and adding the comment "However, we have never had confirmation of this record".

Made in a surprisingly casual way, this record, which I am pretty sure is the inspiration behind later unconfirmed reports of the existence of *M. arion* in the Hebrides, has never been confirmed, in spite of many efforts of Mr. Peter Wormell, a competent and keen entomologist, who was Warden of the Island of Rum from the time that it was acquired by the Nature Conservancy in 1957, until 1974, or by any other entomologists who have visited the island. But behind the record lies an interesting and rather puzzling story.

Having started to make entomological observations in the Hebrides in 1934¹, first on Barra², and after May 1938 on Canna³, where I farm, I was particularly interested in this rumour of the presence of *M. arion* on Rum, which I first heard in the autumn of 1945. Surviving correspondence to which I have had access through the courtesy of Mr. N. D. Riley shows that in fact the rumour of the alleged existence of *M. arion* on the island of Rum goes back to July 1938. On the 28th of that month Professor Heslop Harrison wrote to H. M. Eldesten from Rum a short letter on lepidoptera observed on the island during his expedition there that year, and ending with the postscript "The most extraordinary thing here is *Lyc. arion*. We have seen two but did not catch them".

Subsequently Professor Heslop Harrison sent to N. D. Riley for publication in the *Entomologist* an article on his Hebridean expedition of 1938, presumably that published on p. 265 of Vol. LXXI in December of that year, and headed with a long title beginning "The Rhopalocera of the Islands of Rhum, Eigg, Eilean nan Each and Heisker". As originally submitted, this article contained a reference to the supposed

¹ *Entomologist*, Vol. LXVII, p. 279, "*Dicranura vinula* in Outer Hebrides".

² *Scottish Naturalist*, Nov.-Dec. 1938, "The Macro-lepidoptera of the Parish of Barra".

³ *Entomologist*, March 1946, "Catalogue of a Collection of Macro-lepidoptera made in the Hebrides between 1936 and the present date". Etc.

observation of *M. arion* on Rum; but N. D. Riley raising the objection that "if the species really does occur there, there will almost certainly be a stampede of collectors to try and get it, and . . . if it does not occur there then your reputation will not have been greatly enhanced in the eyes of the same collectors".⁴ Professor Heslop Harrison agreed that the reference to *M. arion* should be omitted from the article.⁵ Subsequently Professor Heslop Harrison asserted that he had only meant to record "the possible occurrence of *M. arion* on Rhum". "Attention was merely drawn to the possibility and to the observation of two people so that some future worker could verify or disprove our notions."⁶

It must be said that it is difficult to see the scientific value of a report of the possible occurrence of any butterfly on any particular island.

In the autumn of 1945 I was in Oxford, where I spent the winter of 1945-46 following a breakdown in health. There I went to call on David Parsons who was doing a post-war course at Magdalen College, and who had visited Canna with Gavin Maxwell in the summer of 1944. Parsons showed me a specimen of the Large Blue which, he said, had been caught on Rum and given to him by Professor Heslop Harrison. I expressed some scepticism; the specimen looked old and dry and had no data label. The possibility that the Large Blue really occurred in the Hebrides seemed an extremely remote one to me.

Next came the reference to *M. arion* on Rum in Professor Heslop Harrison's article on "The Passing of the Ice Age" in the *New Naturalist*, published in 1948, already referred to. The odd thing is that the Editor of the *Record* possesses a letter from Professor Heslop Harrison written on 27th September of the same year, saying "It is correct that *M. arion* has occurred in the Hebrides, in the Isle of Rhum, three specimens only being involved. As I have no wish to record the fact until I have seen the insect in greater quantity, nothing has been, or will be, published until I know more facts". He must have forgotten the allusion he had made in the article contributed to the *New Naturalist*.

In 1955 Professor Heslop Harrison published his article on "The Lepidoptera of the Lesser Skye Isles" (including Rum and Canna) in the May and June issues of the *Record*. There is no reference to the capture of *M. arion* on Rum in this article. In 1969 an important paper on "The Entomology of the Isle of Rhum National Nature Reserve", edited by W. O. Steel and G. E. Woodroffe, was published in the March issue of the *Transactions of the Society for British Entomology* (Vol. 18, part 6). *M. arion* is not included amongst the Rum lepidoptera.

In these circumstances, and seeing that there had never been confirmation of the presence of *M. arion* on the island of Rum,

⁴ N. D. Riley to Professor Heslop Harrison, 20/10/38.

⁵ Professor Heslop Harrison to N. D. Riley, 21/10/38.

⁶ Professor Heslop Harrison to N. D. Riley, 25/4/39.

while rumours of its presence on other islands of the Hebrides were beginning to circulate, it seemed to be time for a further investigation of its alleged capture on Rum (rumours from other islands being only of sightings).

The first step was to trace David Parsons. This was eventually done, and he was found to be living at Broxbourne in Hertfordshire. He very kindly went to some trouble to search in his papers for letters relating to the subject of the Rum *arion*. A considerable correspondence then developed between myself and Parsons, Peter Wormell, E. C. Pelham-Clinton, N. D. Riley, and others, on the subject. The outcome was some very interesting information, but not an entire solution of the puzzle.

Professor Heslop Harrison had told Parsons that he had taken three specimens of *M. arion* on Rum in the summer of 1943; one had been given to Mr. W. Champion, who had been there at the time; another was later given to Parsons, as has already been related; and Professor Harrison had told Parsons that he would send the third specimen to Oxford,⁷ but Oxford knows nothing of any such specimen. Another person who had witnessed the capture was Miss Rhodes, who had been doing some form of natural history research on Rum at the time. Parsons himself remembered Miss Rhodes being on Rum in the summer of 1944, when he visited the island; but although the conditions were ideal, there was no sign of *arion*.⁸

Parsons added that while on leave at Oxford before the summer of 1944, he had been advised by James Fisher to look for *M. arion* on Rum, the localities suggested being Glen Shellesder, Samhnan Insir, Mullach Mor, and Allt Mor na h-Uamha. These are fairly widely separated places in the west, north and east of the island respectively. There seems to be some confusion here, however. In his letter of 2/9/69 Parsons wrote to me that he was "fairly sure that Glen Shellesder was the one which Heslop Harrison seemed to favour. We landed at Harris Bay — and the glen ran at right angles to the shore — and there was plenty of ant's nests and thyme". I had heard myself that Harris Bay was supposed to be the locality for *M. arion* on Rum, but Glen Shellesder is not there, but in the part of the island opposite to Canna. It is hardly a suitable locality for *arion*.

This described the circumstances of the alleged captures; the important thing now was to trace the witnesses and the specimens. Here the results were as follows: —

David Parsons was under the impression that he had given the specimen of *M. arion* that Heslop Harrison had given him, to E. B. Ford at Oxford.⁹ But E. B. Ford stated to E. C. Pelham-Clinton later that he had never possessed or seen the specimen. He had heard of it long ago but had doubted its existence.¹⁰

⁷ Letter from Professor Heslop Harrison to David Parsons of 4/1/45.

⁸ Letters from David Parsons to J.L.C. of 2/9/69 and 20/9/70.

⁹ Parsons to J.L.C., 2/9/69.

¹⁰ Pelham-Clinton to Parsons, 5/10/70.

(In fact in his book on Butterflies, published in 1945, he had said he had omitted from the map localities claimed for Wiltshire and Hertfordshire, as well as "the possibility of another, and very different, habitat for this species" (p. 127).

W. Campion to whom Heslop Harrison was said to have given one of the specimens from Rum, and to have been present at the time of capture, was a collector who lived near Newcastle. He had died about twenty years ago, and no one knew what had become of his collection.¹¹

Miss Rhodes was eventually traced through the help of Colonel Mackworth Praed and N. D. Riley, and was found to be at Hildersham Hall, Cambridge. Peter Wormell got into touch with her, and was told that she was with Professor Heslop Harrison when the supposed specimens of *M. arion* were caught on Rum, but as she was not a lepidopterist, she could not confirm their identity.¹²

There remained the question of the whereabouts of the specimens of lepidoptera collected by Professor Heslop Harrison in the Hebrides over the many years he worked there, including the types of a number of claimed Hebridean sub-species. This matter was pursued by E. C. Pelham-Clinton, who found that Professor Harrison's collection had been divided between Mr. T. C. Dunn and the Hancock Museum at Newcastle. Mr. Dunn most kindly allowed Pelham-Clinton to inspect his part of the Harrison collection, and provided valuable information on the latter's collecting methods. When Pelham-Clinton visited Mr. Dunn at Chester-le-Street and the Hancock Museum, he found to his great surprise that the collections referred to contained no specimens from the Hebrides. He wrote to J.L.C. that:

"Dunn was a friend of his (i.e. Heslop Harrison's), and went with him on some expeditions, though not to Rum or Canna. He can throw no light on *arion*. He said that Heslop Harrison got most of his records from larva beating: he beat wherever he went, 'identified' the larvae on the spot, and did not keep them. If any specimens had to be brought back for identification, they were not set, but compared with his collection and then thrown away. It is extraordinary that he did not even bother to set and add to his collection such species as *Z. purpuralis* — the space for that species is empty. . . . I asked about the types of H.H.'s 'subspecies', such as *Nyssia zonaria atlantica* and *Pararge aegeria oblita*, but there are no types, no specimens at all. Dunn says that there were a lot of *zonaria* in store-boxes (I wonder who set them!) all devastated with *Hofmannophila pseudospretella* or such pests and that, with others, they were thrown away. He showed me some store-boxes that he thought would contain some Hebridean material, but there was none: one contained a number of *arion*, all from the Cotswolds or north Cornwall. . . . The collection is worthless as substantiation for any of H.H.'s records. . . ."¹³

¹¹ Pelham-Clinton to J.L.C., 13/10/70.

¹² Pelham-Clinton to Parsons, 19/7/72.

¹³ Pelham-Clinton to J.L.C., 24/11/69.

Pelham-Clinton considered that the most likely explanation of the Rum *arion* was that "H.H. misidentified some large and very blue female *P. icarus*, and when he discovered his mistake, had to send you (*i.e.* Parsons) an old *arion* to support his story".¹⁴

P. icarus is often large and brilliant in the Hebrides, and this kind of misidentification, I am sure, may very well lie behind one or two claims by amateur entomologists to have seen *M. arion* in other islands; but it cannot cover the alleged Rum specimens, for Professor Heslop Harrison knew var. *caerulea* of the *P. icarus* female well enough.¹⁵

It must be said that it would have been an extraordinary thing for a professional zoologist connected with a well-established university to capture three specimens of such a rare butterfly as *M. arion* in a totally new and unexpected locality, and to have given two of them (one certainly unlabelled) away to amateur entomologists. An explanation of this might have been that Professor Heslop Harrison, having *thought he saw M. arion* flying on Rum in 1938, gave specimens from elsewhere to Parsons and Campion by which they might recognise the species if they visited the island. But this possibility is negated by Parsons' recollection of his surprise at being given a supposed Rum specimen, and by the presence of Miss Rhodes at the time of the alleged captures.

The whole matter must be set against its circumstantial background. The first circumstance is that before its acquisition by the Nature Conservancy in 1957, the island of Rum was rigorously closed to the public by its owners; during the years of the war this closure was reinforced by the need of visitors to obtain military permits to enter any part of the Highland area west of the Caledonian Canal. Professor Heslop Harrison and his parties thus had a privileged access to the island.¹⁶ The second circumstance is that that *M. arion* is not the only unconfirmed butterfly reported by Professor Heslop Harrison from Rum; *B. euphrosyne*, *E. aurinia*, and *E. aethiops*, and on Canna *C. tullia*, all come into this category.¹⁷ Thirdly, one has to con-

¹⁴ Pelham-Clinton to Parsons, 5/10/70.

¹⁵ See the *Entomologist* of January 1937, p. 3, where Professor Heslop Harrison described the finding of this form of the female *P. icarus* on Scalpay (Skye).

¹⁶ See the letter from (Sir) Frank Fraser Darling in *Sunday Times* of 25/1/48 pointing this out. So far as Canna was concerned, we made many landings on Rum between 1945 and 1955 in search of flotsam and we knew the wilder parts of its shores better than the people on Rum did themselves. The boulder beach of Harris in Rum, where *arion* is supposed to have occurred, is particularly difficult to land on. It was on such visits that various species of lepidoptera such as *B. selene*, *C. matura* and *Z. purpuralis* were observed on the western cliffs of Rum.

¹⁷ See the *Transactions of the Society for British Entomology*, Vol. 18, part 6, p. 115. It is unfortunate that in this list of the lepidoptera of Rum, *euphrosyne* (asserted from a single specimen seen on the wing, in the *Entomologist*, Vol. 71, p. 266), *aurinia* and *aethiops*, were not placed in square brackets as needing further confirmation.

sider John Raven's famous letter on "Alien Plant Introductions on the Isle of Rhum" in *Nature* of 15th January, 1949, which suggests that perhaps Professor Heslop Harrison's ardent and competitive personality may have laid him open to students' practical jokes.

One would like to think that the Large Blue, like the Chequered Skipper (*C. palaemon*), might really exist in suitable inaccessible spots in the West Highlands and Islands of Scotland. But before rumours of its presence can be accepted, fresh specimens must be produced by *bona fide* collectors, and competent entomologists must have the fullest opportunity to examine any alleged locality. So far as *M. arion* and the other species mentioned are concerned, this has been the case on the island of Rum since 1957, without any success.

A Wet Season, 1974

By DAVID BROWN

Charlecote, near Warwick

A local wood introduced my season on the evening of 22nd March, where I recorded ten species of Macros, including a dozen *Orthosia populeti* Fabricius, which seemed early, but judging from their damaged condition, had obviously been on the wing some time.

Later in the month, I travelled down to the New Forest with Andrew Gardner, where we operated four mercury vapour lights and four actinics. The cloud cover gave way to cool and clear conditions and the only worth while moth taken was a female *Lithophane ornitopus* Hufn.¹ which must have already laid. We returned to Warwickshire the following morning and in the afternoon visited Oversley Wood, near Alcester, where in good sunshine *Archiearis parthenias* Linnaeus was abundant, flying around the birch tops and feeding high up on sallow blossom. *Nymphalis io* (Linnaeus), *Polygonia c-album* (Linnaeus) and *Gonepteryx rhamni* (Linnaeus) were also plentiful in all the rides and clearings.

That evening Brian Withers travelled up from Harpenden in the hope of *Trichopteryx polycommata* (Denis and Schiffermuller). We tried a local wood, where the moth traps produced four specimens, all in good condition.

At Oversley on 8th April, m.v. light attracted 25 *O. populeti* and a single *Eupsilia transversa* (Hufnagel). I was in the New Forest again on 11th April. The temperature remained at around 50°F. under the heavily overcast sky. Two m.v. lights and the two actinics produced 18 *Odontosia carmelita* (Esper), one *Notodonta trepida* (Esper), 15 *Polyplocia ridens* (Fabricius), 2 *O. populeti*, 2 *Xylena vetusta* (Hübner), 2 *Eupithecia irriguata* (Hübner) and 21 other species of macro. Detailed searching of blackthorn bushes in the neighbourhood only produced one

¹ Reports indicate that this species has become generally scarcer in recent years. — Editor.

Bapta distinctata (Herrich-Schäffer). Andrew Gardner joined me the following evening when four m.v. lights produced much the same species with the following additions: a female *Saturnia pavonia* (Linnaeus), *Celama confusalis* (Herrich-Schäffer), *Colostygia olivata* (Denis and Schiffermuller) and *Pachycnemis hippocastanaria* (Hübner).

In the local Oversley Wood on 27th May the moth traps attracted *Tethea or* (Denis and Schiffermuller), an uncommon moth in Warwickshire, also 30 *Clostera curtula* (Linnaeus), one *Cerura vinula* (Linnaeus), 10 *Drepana lacertinaria* (Linnaeus), one *Anaitis plagiata* (Linnaeus), five *Bapta bimaculata* (Fabricius), 12 *Anagoga pulveraria* (Linnaeus), one *Selenia lunaria* (Denis and Schiffermuller) and 10 *Lobophora halterata* (Hufnagel).

Andrew and I again visited the New Forest on 7th June. Fifty-three species were recorded for the night including *Sphinx ligustri* (Linnaeus), *Stauropus fagi* (Linnaeus), *Drymonia dodonaeae* (Denis and Schiffermuller), *N. trepida*, *Adatele alni* (Linnaeus), *Bena fagana* (Fabricius), *Pseudoboarmia punctinalis* (Scopoli), *Ectropis extensaria* (Hübner) and *Cleora cinctaria* (Denis and Schiffermuller).

I was in Kings Wood on the Bucks./Beds. border on the nights of 10th and 11th June when the following came to light: *S. fagi* (melanic), *N. trepida*, *D. dodonaea*, and many attractive forms of *Hepialus fusconebulosa* (De Geer).

Oversley on the 12th and 14th June gave exciting results with the first specimens of *S. fagi* in Warwickshire for a good many years, and also *Abraxas sylvata* (Scopoli).

The 16th June found me at Dungeness, where it was warm and overcast with a strong breeze which, thankfully, dropped shortly after dark to give thundery conditions. Forty-six species of macros came to the lights, *Hada nana* (Hufnagel), *Hadaena bicolorata* (Hufnagel), *H. conspersa* (Denis and Schiffermuller), *H. albimacula* (Borkhausen), *H. lepida* (Esper), *Arctia villica* (Linnaeus) and *Earias clorana* (Linnaeus), which were all common and in good condition. The following night was clear and very windy and produced many of the previous night's species but in smaller numbers. However, one moth of interest was a male *Macrothylacia rubi* (Linnaeus) which had been attracted to one of actinic lights.

My next expedition was for *Moma alpium* (Osbeck) in Hampshire where Peter Rogers kindly navigated me to the location. Although the night was cool, clear and windy, four appeared, all chipped, but including a female which laid 110 eggs resulting in 100 pupae awaiting emergence. Other species of interest were three *Apoda avellana* (Linnaeus) and one *Anaplectoides prasina* (Dennis and Schiffermuller).

There was heavy rain on 2nd July but this did not deter me from going to the Chilterns in the hope of *Trisateles emortualis* (Denis and Schiffermuller). It was still a damp and misty night and the large beeches dripped heavily in the cool, hanging night air. The usual species for the area appeared, *S. fagi* very com-

monly, together with numbers of *Amathes ditrapezium* (Denis and Schiffermuller), *Horisme tersata* (Denis and Schiffermuller), *Melanthia procellata* (Denis and Schiffermuller), *Cosymbia linearia* (Hübner), *A. sylvata*, *Hydrelia flammeolaria* (Hufnagel), *S. lunaria* and a single *Cosymbia annulata* (Schulze), but unfortunately no *emortualis*.

A non-collecting trip took me to the Gower Peninsula in the second week of July, and accordingly I was not able to give a large amount of time for exploration. However, at Whitford Burrows in the extensive and pleasant sand dunes, *Melanargia galathea* (Linnaeus), *Eumenis semele* (Linnaeus) and *Argynnis aglaia* (Linnaeus) were all plentiful.

Dungeness received my second visit on 18th July where there was already quite a concourse of collectors. Eventually, having located an untenanted "pitch", I set up my own traps and attracted 39 species, including three *Dasychira fascelina* (Linnaeus), many *Euprodia chrysorrhoea* (Linnaeus), one *Agrotis vestigialis* (Hufnagel) and one *Lithosia pygmaeola* (Doubleday).

The following day Peter Follet and Bill Coster accompanied me to Sandwich, where we witnessed a migration of *Macroglossum stellatarum* (Linnaeus). That evening we again set up our m.v. traps at Dungeness with high hopes of further migrants. However, we were quite unsuccessful, but Peter later wrote to inform me that on the following night he took an *Acherontia atropos* (Linnaeus) — I came away too soon!

Further surprises were in store at Oversley on 22nd July in the form of *Semiothisa notata* (Linnaeus), a new county record, many *Mitochrista miniata* (Forster), four *Parastichtis suspecta* (Hübner), two *Apatele leporina* (Linnaeus) and *Zeuzera pyrina* (Linnaeus), plus 60 other species.

The Wyre Forest was my venue for the next night's collecting. I was pleased that the sky remained overcast after previous experience of the low temperatures in this forest on clear nights. It began to rain in the early morning hours and became warmer, if anything, before dawn. Consequently there were good numbers of moths in the traps when I inspected them in the morning light. Amongst the usual woodland species were *Plusia autographa* (Hübner) and *Parascotia fuliginaria* (Linnaeus).

On the 25th July I was installed near Whitchurch in a Cheshire moss seeking *Lithosa sericea* (Gregson). I arranged the m.v. lights in the more open aspect of the moss and the actinics the other side of a deep ditch in the shelter of some willows and birches. It was whilst I was hauling my heavy equipment over this ditch that the bank collapsed and I found myself wading thigh-deep in cold, muddy water and it was lucky I had taken a spare change of clothing. Having overcome this minor difficulty, I stayed on to receive a few *sericea*, although mainly worn, also *A. ditrapezina*, *Dypterygia scabriuscula* (Linnaeus), *Anarta myrtili* (Linnaeus), *Plusia festucae* (Linnaeus) and *Schrankia costaestrigalis* (Stephens).

Back at Oversley Wood in Warwickshire the following night,

I recorded another new species for the county, a very early *Enargia paleacea* (Esper), with further *M. miniata*, *A. prasina* and *A. sylvata*. The next night *Procus versicolor* (Borkhausen) appeared.

I enjoyed a trip to fresh pastures in Wales on 6th August for *Coenophila subrosea* (Stephens). Despite a fire which had swept across the bog earlier in the year and made the ground black and ravaged in places, the insect was reasonably plentiful at the lights together with *Hydraecia lucens* (Freyer) and *Zenobia retusa* (Linnaeus). The following evening Bill Coster and two friends turned up. We left the lights running in the bog and travelled to some sand dunes which I had explored during the day. Light and sugar produced *A. vestigialis*, *Euxoa obelisca* (Denis and Schiffermuller), *E. tritici* (Linnaeus) and *Gnophos obscurata* (Denis and Schiffermuller).

I was at Cannock Chase on 13th August on a very damp and misty evening after another day of persistent rain. Sugaring the trees proved hopeless as the mixture merely ran off the saturated trunks. By far the most abundant species at light was *Amathes baja* (Denis and Schiffermuller) in some beautiful varying forms. *Lithomoia solidaginis* (Hübner) and *Stilbia anomala* (Haworth) were only just beginning to emerge with singletons of each. The next night I found *E. paleacea* well out in a Worcestershire wood.

Oversley Wood continued to be a favourite local haunt and produced further surprises. On the 15th it conjured up *Leucania straminea* (Treitschke) and *S. costaestrigalis*, both very rare Warwickshire species.

Further visits to Cannock Chase on 21st and 23rd August found *L. solidaginis* well out together with good numbers of *Diarsia dahlii* (Hübner), some deep red forms of *Amathes castanea* (Esper), *Paradisea glareosa* (Esper), *E. paleacea* and *S. anomala*. Curiously during the latest trip I experienced my second career visit of the law, when at 3 a.m. they arrived to find out "what's going on here then?".

My next expedition was to Devon on 25th August when *Euplagia quadripunctaria* (Poda) was in good evidence. M.V. light near Beer on 26th was very unrewarding and the only migrants were numbers of *Agrotis ipsilon* (Hufnagel). The following night at Dawlish produced *A. vestigialis*, *E. tritici*, *E. obelisca*, *Tholera cespitis* (Denis and Schiffermuller), *L. straminea*, *Arenostola pygmina* (Haworth), *Rhisedra lutosa* (Hübner), *Hydraecia crinanensis* (Burrows) and *Caradrina ambigua* (Denis and Schiffermuller).

I motored over to the north coast near Tintagel on the 28th for two nights in the hope of *A. xanthomista* (Hübner), but with no luck as it appeared I was too early. *Agrotis trux* (Hübner), *H. conspersa*, *Cryphia muralis* (Forster) and *G. obscurata* were still flying.

I returned to Dawlish on 30th August to complete my series of *ambigua* and to add one more *crinanensis* to my collection. The next two nights were spent at Beacon Hill near Sidmouth,

but little of note appeared. On 2nd September the weather broke and severe gales swept through the area felling trees like nine-pins and blocking many roads. These high winds and heavy storms made further collecting impossible and I was forced to make for home and shelter on 3rd September.

Indeed, these winds continued for several days making September of 1974 one of the wildest known.

The calm and mild evening of 11th September found me at Swanage, hoping for *Leucochlaena hispida* (Geyer). The sky remained overcast and the temperature around 60°F. until heavy rain started at 3 a.m. However, I managed to obtain four very fresh *hispida* at the m.v. traps. Also of interest was an early *Aporophila australis* (Boisduval), *Leucania albipuncta* (Denis and Schiffermuller), *A. glareosa*, *Peridroma porphyrea* (Denis and Schiffermuller), many *C. ambigua*, *T. cespitis*, one *Scopula conjugata* and two *G. obscurata*. As I was packing up my equipment the following morning, *Lysandra bellargus* (Rottemburg) and *Polyommatus icarus* (Rottemburg) were in good evidence during a brief sunny interval.

For the next night I travelled along the coast to Portland and set up my traps on the cliffs above Church Ope Cove. It promised to be a good night until a very strong and blustery wind got up at dusk, and, gaining strength, finished up at gale force by 11 o'clock. Driving rain made conditions even more miserable. I was glad to have the company of Mr. Birchenough of West Wickham, who was also after *hispida*. We found several on the grassy banks, mainly resting on the stronger stems of plants, which gave better support in such blustery conditions. My two m.v. lights produced the grand total of two moths, *pronuba* and *xanthographa*! However, the Heath trap, which had been lugged down the rocks 100 feet to a very sheltered little nook had attracted 15 *hispida*, three *Colostygia olivata* (Denis and Schiffermuller) and numbers of commoner species. I returned home the next morning well satisfied with a lovely series of *hispida* obtained in such poor conditions.

I was back at Portland on the night of 5th October. Weather conditions seemed good shortly before dark — overcast, mild and reasonably calm. However, soon after dusk the wind became very gusty to clear the skies and expose the bright moon. However, I was pleased to take four new species, 30 *Leucania l-album* (Linnaeus), 35 *Eumichtis lichenea* (Hübner), two *Antitype flavicincta* (Denis and Schiffermuller) and nine *Aporophyla nigra* (Haworth), all very fresh. I was surprised, after my last visit, still to find *hispida* so fresh and in such good abundance — over 300 at my two m.v. lamps and two actinics. Unfortunately *australis* was becoming worn and was not very plentiful. Migrants continued to be scarce, only a few *Autographa gamma* (Linnaeus), one *porphyria* and one *ipsilon*....

The next opportunity I had to try for more *flavicincta* was on 11th October when I travelled down to the same site with Andrew Gardner. Although I had no luck this time with *flavicincta*, I took a very fresh *Dasypolia templi* (Thunberg) in

the actinic. *A. nigra* was more abundant this time, *lichenea* and *hispidia* were still common, but *l-album* was represented by only one individual. With things becoming slack at the lights by 4 a.m., we decided to pack up and travel home before the roads filled up, completing the journey in $3\frac{1}{4}$ hours to find there were signs of a ground frost in Warwickshire.

The next journey south was on 26th October to the New Forest in the hope of *ornitopus*. Sixteen species of macros appeared but unfortunately no *ornitopus*. *Agrochola macilenta* (Hübner) was abundant, and in good variety, *Eupsilia transversa* (Hufnagel) was also fairly common and in good condition. It was interesting to note that this species preferred the actinic lights to the brighter m.v. lights. *Thera firmata* (Hübner) and *T. obeliscata* (Hübner) were frequent, together with late *Tiliacea aurago* (Denis and Schiffermoller) and *Gryposia aprilina* (Linnaeus).

My 77th and final nocturnal expedition of the year took me to the Chilterns for *Ptilophora plumigera* (Denis and Schiffermuller) on the 8th November. I arrived at 5.30 p.m. by which time it was quite dark. I quickly arranged my two m.v. lights and two actinics. Climatic conditions were ideal with a temperature of over 50°F., no wind, and a very light drizzle of rain. By 8.30 p.m. 85 *plumigera*, all males in splendid condition had arrived, including 40 in one actinic trap! Other visitors on this mild evening were late *T. aurago* and *A. macilenta*, one *E. transversa*, many *vaccinii*, singletons of *Episema caeruleocephala* (Linnaeus) and *Agrochola circellaris* (Hufnagel), many *Poecilocampa populi* (Linnaeus), *Thera obeliscata* (Hübner), *Operophtera brumata* (Linnaeus), *Oporinia dilutata* (Denis and Schiffermuller), *Erannis defoliaria* (Clerck) and *Colotois pennaria* (Linnaeus).

With this satisfactory catch I had packed up my paraphernalia and was heading back to base by nine o'clock.

AN ADDITIONAL FOODPLANT FOR PHYLLONORYCTER MESSANIELLA (ZELLER). — On 10th July 1972, I found several *Phyllonorycter* mines on a young Copper Beech tree in my parent's garden at Higham, Kent. Three days later three *Phyllonorycter messaniella* (Zeller) emerged. Mines have since been found each summer and autumn, in some numbers. I have not heard of this species being taken on Beech in this country, although Hering *Bestimmungstabellen der Blattminen von Europa* (1957) does give *Fagus* as a foodplant.

On this same tree I have also found a larva of *Ptilodon capucina* (Linn.). The larva still retained its green colour and was consequently very conspicuous against the copper colour of the leaves. I am sure that particular insect never survived to see the rays of a mercury vapour lamp! — STEVEN E. WHITEBREAD, 2 Twin Cottage, Grove Farm, Nr. Rochester, Kent. 1.v.75.

Mellicta athalia Rottemburg in East Cornwall, 1974

By CAPTAIN PETER GAINSFORD

Mulberry House, 58 Whitchurch Road, Tavistock, Devon

With another year of sharp decline in our butterfly population, and one of the poorest entomological seasons for many years, it is extremely encouraging to be able to record series of exciting events in a small East Cornish colony of the Heath Fritillary, *Mellicta athalia* Rottemburg.

Towards the end of March a young friend of mine told me that he had found a remarkable concentration of *athalia* larvae a few miles from a locally known colony near the River Tamar, and at the first opportunity offered by a fine and bright afternoon he directed me to the spot.

We drove down a lane into the western depths of a little valley and parked the car by a stream. The natural beauty of the environment had been all but destroyed by the ravages of the *Forestry Commission*, and young conifers as yet only a foot or two in height had been planted almost everywhere.

The larvae were immediately in evidence feeding voraciously on Foxglove (*Digitalis purpurea* L.) growing on the south-facing bank of the lane, and for about one hundred yards the population was dense — every plant supporting some and many being attacked by thirty or more at once. The majority were low down, almost on the narrow verge adjoining the tarmac, thinning out towards the top of the bank, and along the short length of the lane alone there must have been well over two thousand. A hasty walk along an open forest track beside the lane and over the steep northern slopes resulted in finding larvae almost everywhere. An area within the lower confines of the valley comprising no more than an estimated five acres must have contained around ten thousand. It was interesting to note that although there was plenty of Cow-wheat (*Melampyrum pratense* L.) and Ribwort Plantain (*Plantago lanceolata* L.) available, neither held any attraction for the vast appetite of this horde. They all made straight for Foxglove, Speedwell, Yarrow and Wood-sage. At Lydford and elsewhere over the nearby border in Devon, Plantain alone is the foodplant of the species.

It was plain that whatever happened during the next two months there would be a lot of butterflies, and I resolved to make another trip to the site before the end of May.

Down here in the South-west we expect *athalia* males to begin to emerge during the second week of June in an average season. There was no indication that Spring was unusually early, in fact rather the opposite seemed to be the case, and the weather was cold and unsettled when I revisited the valley on the 31st May. However, even before the sun had broken through after a wet and misty morning I found *M. athalia*, *Euphydryas aurinia* Rott., *Boloria* (*Clossiana*) *euphrosyne* L. and *B. (C.) selene* D. & S. on the wing, and some of the *athalia* had clearly been out for several days — the earliest I have recorded.

After more rain I went out again on the 3rd June, and the sun obliged by appearing for quite long intervals though there was a cold, strong wind. Numbers were already building up well and I checked about forty *athalia* fluttering up from the long grass in the first half-hour. I climbed up the somewhat sheltered North side of the valley on to a stoney ledge which had at one time carried a narrow-gauge railway from a nearby mine, and as I began to walk round a bend into the north-west wind I disturbed several butterflies from rest which were carried away into the valley as soon as they were airborne. Then another appeared, trying to fly into the wind keeping very low. Despite its rapid movement I could see at once that it was quite different in colour and marking and promptly netted it for examination. It was a fresh and magnificent ab. *cymothoe* Bertolini. Having been with Baron C. G. M. de Worms at Lydford last year, when we together saw (and he took) a perfect female ab. *corythalia* Hübner, I had a feeling that "*navarina*" might soon follow "*eos*". But this was only the beginning of what was to be a most remarkable series of events.

Delighted with my prize, I resolved to spend as much time as possible during the next few weeks of the flight season checking specimens for aberration, and this immensely tiring task proved very rewarding.

At the peak of emergence there must have been well over a thousand *athalia* on the wing, together with many *selene*, and I must have examined and re-examined many insects quite a few times. In fact several became "old friends" over a period of days and could be recognised immediately.

The next outstanding aberration was a male ab. *tetramelana* Cabeau in perfect condition. It was flopping along over some Dandelions, not far from the spot where *cymothoe* was found, in warm sunshine at mid-day on 5th June.

At 2.45 p.m. on the 7th, just before packing up to return home, a female ab. *corythalia* Hübner jumped up from among some diminutive conifers in long grass down near the lane; and at 5 p.m. the following day, after several hours searching the length and breadth of the area, I took an extreme male ab. *melanoleuca* Cabeau. It was perched invitingly on Fern with wings closed, freshly emerged.

Just before mid-day on 10th June, in warm sunshine between showers and again up on the old railway embankment, a male ab. *corythalia* Hübner appeared flying over Red Campion (*Melandrium rubrum* Garcke), and during the afternoon an interesting male ab. *obsoleta* Tutt was caught among brambles and clumps of wild flowers near the stream.

The 11th is memorable for an unusual melanic male with heavy suffusion of black markings on all four wings, approaching *cymothoe*.

On 12th June the short spell of fair weather began to break up, but around noon and before the sun disappeared behind heavy cloud I had netted no less than three major aberrations. The first was a very extreme male ab. *cymothoe* Bertolini taking

nectar from early Bramble blossom. Unfortunately it was a little worn, and I wondered how it was that I had failed to meet up with it sooner! The second was a female ab. *nov.*, a very large specimen with primrose-yellow ground colour and black and orange markings — a really beautiful creature. Lastly, another male ab. *corythalia* Hübner, a little less extreme than earlier examples with two rows of orange spots on one hindwing and only one row on the other.

The weather continued wet for a week, and with this splendid series of trophies I had every reason to be content. However, when 20th June dawned clear and bright I cancelled other arrangements and returned to the site yet again. What a day this proved to be! By 10 a.m. it was really warm, and literally every step I took in the long grass and among the conifers put up three or four *athalia*. Numbers were now at peak, and there were scores of large and richly coloured females, pairs mating, with worn and fresh males everywhere, and I decided to cover the ground in six feet wide strips. With a single sweep of the net I could take several specimens, so individual examination was just out of the question. I had become so familiar with the habits and behaviour of *athalia* that I had no difficulty in spotting even minor variations as they flew rather feebly around, and I had ceased to pay very much attention to the many specimens which fall into this category. After an hour or so plodding up and down in the coarse undergrowth, stumbling repeatedly as the Brambles trapped my feet, I paused to wipe the perspiration from my face. From a batch of shaded Fern a butterfly flew lazily out into the sunshine and as the rays caught its wings it appeared almost white. Could it be so worn, I thought, as to be virtually transparent? Its flight was quite unmistakable, and as with most others of the species I took it with consummate ease. It proved to be perfectly fresh, with type markings and pattern, but the ground colour was almost white — a very good male example of ab. *latonigena* Spul. Within half an hour I took another equally extreme but larger specimen of the same aberration!

On my way back to the car I saw what I thought to be an extremely small male, but it turned out to be a perfect dwarf female. It was an unusually spirited flyer and very nearly managed to escape.

Finally, I found what I consider to be the prettiest aberration of them all — a female ab. *nov.* with the base and central areas of the forewings heavily suffused with black and bright red, orange and yellow spots and patches elsewhere on deep fulvous ground colour.

From 21st June onwards no further variation was apparent in the colony and by mid-July the few remaining butterflies were very worn and tired.

Looking ahead it is evident that the butterfly cannot survive here for more than a few years, and it is extremely doubtful whether any suitable communications exist with other localities in the vicinity. Under all natural conditions *athalia* is a remark-

ably hardy and tenacious species, and although extremely local it is usually plentiful where it is found. If, however, it is to survive man's demands upon nature it needs determined and properly organised protection while there is yet time.

The is no doubt at all in my mind that the S.E. *athalia* is a different race from the S.W. *athalia*, and careful study will bring forth interesting and edifying results.

CHLOROCLYSTIS CHLOERATA (MABILLE) IN KENT. — I beat out three half-grown larvae of this moth from *Prunus spinosa* L. at Cudham, Kent on 27th April 1975. I believe this is the first time this species has been taken in the county. — B. K. WEST, 36 Briar Road, Bexley, Kent.

PYRONIA TITHONUS L. AB. ALBIDUS COCKERELL IN THE ISLE OF WIGHT. — I recorded a female specimen of this rare aberration near Ventnor in 1973 (*Ent. Rec.*, **86**: 272). Another ab. *albidus* was captured in the same locality on 4th August 1974 which was also a female, but again no eggs were obtained. — T. D. FEARNEHOUGH, 26 Green Lane, Shanklin, Isle of Wight.

COLEOPHORA TROCHILELLA (DUPONCHEL), ISOPHRICTIS STRIATELLA (DENIS & SCHIFFERMULLER) AND ECTOEDEMIA ERYTHROGENELLA (DE JOANNIS) IN NORTH KENT. — On 27th May 1974, I found some *Coleophora* cases feeding on *Tanacetum vulgare* (Linn.), Tansy, at Cliffe chalk pit, Kent. The cases were identical to those of some *Coleophora trochilella* (Duponchel) feeding on *Achillea millefolium* (Linn.), Yarrow, and *Artemisia vulgaris* (Linn.) Mugwort, nearby. The moths failed to emerge, but it is very probable that these cases would also have produced *trochilella*.

Later in the year, on 11th August, I was looking for *Platyptilia ochrodactyla* (Denis & Schiffermuller) after dark on the flower heads of these same Tansy plants. Instead of the plume, I was very pleased to find a number of worn specimens of *Isophrictis striatella* (Denis & Schiffermuller). This species was rediscovered by Col. W. B. L. Manley in 1956 on the banks of the Medway, near Maidstone. The following year, S. Wakely found the larvae and asked fellow entomologists to look for it (*Entomologist's Record*, **69**: 257-8). Mr. John Roche tells me that he has taken it at Dungeness, Kent, recently. Has it been taken in any other new localities?

In February this year, at the same locality, I also found a few mines of the recently discovered *Ectoedemia erythrogenella* (de Joannis). The mines were not fully formed, the larvae apparently having died within the mine. I would like to thank A. M. Emmet for confirming the identity of the mines, which constitute the third record for Kent. — STEVEN E. WHITEBREAD, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent. 1.v.75.

Preliminary Notes on the Biology of *Scymnus nubilus* Mulst., a Predatory Beetle on Aphids in Punjab

By G. S. SANDHU and UMA KANTA

Department of Entomology, Punjab Agricultural University,
Luhiana, India

Scymnus nubilus Mulst. (Coccinellidae: Coleoptera) a small roundish (1.93 mm. x 1.24 mm.) brown beetle was commonly observed feeding on corn aphid *Rhopalosiphum maidis* Fitch infesting maize (*Zea mays* L.) tassels during July-October 1972 and April-May 1973. In size it showed close resemblance to *Scymnus gracilis* (1.93 mm. x 1.21 mm.) a black predatory coccinellid feeding on mites. *S. nubilus* was more specific predator of aphids. Its role as a predator of aphids has been normally neglected because of its small size. Its predatory habits have been cursorally mentioned by Narayanan *et al.* (1967) and Sandhu *et al.* (1973) but no work has been done on its biology. Preliminary observations on its biology are being reported in this note.

Neonate small woolly, white, active larvae were collected (n=26) and brought to the laboratory during August 1972 from the field deposited egg mass. They were reared singly in small Petridishes (5 cm.) and aphids on small pieces of maize tassel were supplied daily. The larvae had cottony-white fluffy scales on the body and conspicuous, sharp curved mandibles. Larvae were full grown in 10-14 days (n=8) and attained 2 mm. length. Pupation lasted for 7-8 days (n=7). The newly emerged dirty white beetles rested for sometime after emergence and the final brown colour developed slowly. The adults survived for more than 10 weeks with or without food and the observations were later discontinued (n=20). It was also reared on *Aphis gossypii* Glov. from cotton. Adults were collected throughout the year but peak-period of activity was from July to October. Beetles normally rested in the whorl of maize plant.

Longevity of adults as observed in the present studies must be of advantage for the survival of the species even with scarcity of food. It can be advantageously utilised for mass release in biological control operations.

Acknowledgements

Authors thank Dr. O. S. Bindra, Professor and Head, Department of Entomology, for facilities and the Director Zoology Survey of India, Calcutta for identification of the beetle.

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The Swallowtail Butterfly *Papilio machaon britannicus* Seitz in Northamptonshire

By MIRIAM ROTHSCILD
Ashton Wold, Peterborough

A perfect specimen (♀) of the Swallowtail was caught on 1st June 1974 in a cottage garden in Polebrook on the perimeter of the Ashton Wold Nature Reserve—the 46th species of British butterfly to be captured in the area between 1920-1974. It is, of course, possible that this specimen was a genuine wanderer from Norfolk (the author also saw one on wing at Ashton in 1960) but it is more likely that it was accidentally introduced in the pupal stage with thatching reed from Hickling Broad. The roof of the cottage in the garden in which the butterfly was caught had been patched as recently as March 1974.

During the past 50 years considerable fluctuation has been noted in the numbers of butterfly species at Ashton (Rothschild, 1947) but the present decade is certainly the most impoverished with regard to the rarities for which the reserve is justly famous. In the following tables 16 species have been selected and a few notes on their status over the last hundred years have been added. During this time very little change has occurred in the wood. There has been no felling. Several small hawthorn scrub areas and protective ash plantations were added round the perimeter and some clearings near the centre have become overgrown and obliterated. Various fields adjoining Ashton Wold were first ploughed up during the Second World War, and cereal crops substituted for pasture land. This practice has continued. Improved drainage on adjoining land has contributed to less water accumulating in the 500 acres of woodland and surrounding fields, and the Reserve has, generally, become drier. Cowslips, although still plentiful, have considerably decreased in number and the primrose correspondingly increased. Scabious has virtually disappeared from the Reserve while honeysuckle has greatly increased. Violets are still extremely plentiful, but they have been adversely affected by the spread of enchanters nightshade in some of the best fritillary areas. In the hawthorn scrub many species of grasses appear to have been swamped by the coarser varieties. This change coincided with the temporary and dramatic reduction in the rabbit population between 1956 and 1972 (Rothschild & Marsh, 1956) and it will be interesting to see if any further changes will coincide with their return in force at the present time.

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Table 1. Status of some butterflies at Ashton Wold

Selected species	Recorded by F. O. Morris (10th edn. 1908)	Intensively collected 1910-1920	Well collected 1940-1950	General observations (No collecting) 1964-1974
Black Veined White <i>Aporia crataegi</i> (L.)	recorded by T. L. Powys	absent	absent	absent
Wood White <i>Leptidea sinapis</i> (L.)	"occurs"	absent	present: rare	absent
Marbled White <i>Melanargia galathea serena</i> (Verity)	"in plenty"	very common	present	absent
Speckled Wood <i>Pararge aegeria tircis</i> Butler	common in all parts	common	common	common
White Admiral <i>Ladoga camilla</i> (L.)	in the area but Ashton not mentioned	absent	common	absent
Large Tortoiseshell <i>Nymphalis polychloros</i> (L.)	"occurs"	absent	one caught 1945	absent
Comma <i>Polygonia c-album</i> (L.)	"occurs"	absent	very common (first caught 1923)	rare
Silverwashed Fritillary <i>Argynnis paphia</i> (L.)	"plentiful"	common	common	rare

Table 2. Status of some butterflies at Ashton Wold

Selected species	Recorded by F. O. Morris (10th edn. 1908)	Intensively collected 1910-1920	Well collected 1940-1950	General observations (No collecting) 1964-1974
Marsh Fritillary <i>Euphydryas aurinia</i> (Rott.)	Not recorded; nearest record Monks Wood	one caught 1920	absent	absent
Duke of Burgundy Fritillary <i>Hammaris lucina</i> (L.)	"occurs"	common	common	absent
Chequered Skipper <i>Carterocephalus palaemon</i> (Pallas)	"abundant"	common	common	absent*
Black Hairstreak <i>Strymonidia pruni</i> (L.)	"in plenty"	common	common	rare
White Hairstreak <i>Strymonidia w-album</i> (Knoch)	"obtained"	common	common	rare
Holly Blue <i>Celastrina agiolus britanna</i> (Verity)	not recorded for the county	present	present	present
Large Blue <i>Maculinea arion</i> (L.).	one recorded (11 specimens taken at Polebrook 12/20 July 1852)	absent	absent	absent

* Now possibly extinct in England. This is inexplicable at Ashton where both the foodplant and the bugle on which the imago feeds are doing well, and the appropriate clearings maintained.

Lepidoptera of Aberdeenshire and Kincardineshire

By R. M. PALMER

(Continued from Vol. 86, page 284)

Scoliopteryx libatrix L.

Not rare (Trail, 1878).

A. Scarce. Rubislaw; Murtle Den; Cluny; Monymusk (Cowie, 1902). Culcs, larvae abundant on willow, 1954 (E.P.).

Phytometra viridaria Clerck.

Not uncommon (Trail, 1878).

A. Occasional. Murcar links; Scotston moor; Blackburn (Cowie, 1902). Braemar, right up to mountain tops (James, 1912). Local, not uncommon at Kintore, Huntly, Dinnet (R.M.P.). Braemar (D.B.).

Hypena proboscidalis L.A. & K. Common. Larvae on *Urtica*.

PART 2

Alucitoidea, Pyraloidea, Pterophoroidea and Geometroidea

Introduction

Of the 224 species listed here, there are no recent records for 39 to add to those already published, and it seems probable that two of these, *Homoeosoma nimbella* Dup. and *Ectropis crepuscularia* D. & S. were recorded in error. The remaining 37 species fall into the following two categories: —

(i) Those probably formerly resident and which may still persist here. *Crambus pascuella* L., *C. ericella* Hübn., *Catoptria furcatellus* Zett., *Eudonia alpina* Curt., *E. lineola* Curt., *Paraponyx stagnata* Don., *Pyrausta cingulata* L., *Pyrallis farinalis* L., *Aglossa caprealis* Hübn., *A. pinguinalis* Haw., *Amblyptilia punctidactyla* Haw., *Timandra griseata* Petersen, *Scopula floslactata* Haw., *Idaea dimidiata* Hufn., *Xanthorhoe ferrugata* Clerck, *Entephria flavicinctata* Hübn., *Hydriomena impluviata* D. & S., *H. ruberata* Freyer, *Perizoma affinitatum* Steph., *P. blandiata* D. & S., *Eupithecia plumbeolata* Haw., *E. abietaria* Goeze, *E. linariata* D. & S., *E. venosata* F., *E. tripunctaria* H.-S., *E. fraxinata* Crewe, *Chloroclystis debiliata* Hübn. and *Lomaspilis marginata* L.

(ii) Species of known migratory origin and others which are unlikely to be resident. *Udea prunalis* D. & S., *Margaritia sticticalis* L., *Nomophila noctuella* D. & S., *Myelois cribrella* Hübn., *Stenoptilia zophodactylus* Dup., *Cyclophora punctaria* L., *Orthonama obstipata* F., *Eupithecia expallidata* Dbl. and *Menophra abruptaria* Thunb.

Of the 185 species in the main list 30 are not recorded by previous authors referred to. Two were not previously recognised as distinct and several others which were absent from previous lists are now quite common here.

The first three superfamilies (Alucitoidea — Pterophoroidea) contain only 50 of the 185 species, but 16 of these are new county records. Moreover, 17 of the species not recorded recently are members of these families, thus indicating the

paucity of our knowledge of the species in this section of the list.

All observations and records in this list without date relate to field observations made during the period 1968-1973 inclusive, with the exception of the Rothamsted Trap at Banchory (referred to as Banchory R.T.) whence all data was gathered during 1973 unless otherwise stated. Finally, as in Part 1 all previously published records for each county are listed chronologically.

Acknowledgements: In addition to once again thanking those acknowledged in Part 1 of this list, I should like to thank Dr. M. R. Young for providing records and Mr. D. Sangster for allowing me to abstract data from his collection of lepidoptera.

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I have had recourse to five references additional to those in Part 1 as hereunder.

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ALUCITOIDEA

Alucitidae

Alucita hexadactyla L.

Abundant among honeysuckle (Reid, 1893).

A. Common in gardens, Aberdeen (G.M., A.D.); Dyce (R.M.P.). Ballater, one, 1971 (E.C.P.-C.).

PYRALOIDEA

Pyralidae

Chrysoteuchia culmella L.

Local and rare (Trail, 1878).

A. Inverurie and Pitcaple (Reid, 1893). Pitcaple, 1968 (R.M.P.); Crathie, one, 1969 (E.C.P.-C.).

K. Muchalls (Reid, 1893); Stonehaven (Dalglish, 1894). Muchalls (R.M.P.); Banchory R.T.

Crambus pratella L.

A. Rare. Braemar (Trail, 1878); Aberdeen links (Reid, 1893); Braemar (E.C.P.-C., R.M.P.); Forvie N.N.R., one, 1957 (E.C.P.-C.).

K. Common at Stonehaven (Dalglish, 1894); St. Cyrus N.N.R., 1961 (E.C.P.-C.).

C. nemorella Hübn.

A. & K. Very common.

C. perlella Scop.

A. Rattray Head, 1954 (E.C.P.-C.).

K. St. Cyrus N.N.R., 1961 (E.C.P.-C.); 1974 (R.M.P., M.R.Y.).

Agriphila straminella D. & S.

A. & K. Abundant.

A. tristella D. & S.

A. & K. Abundant.

A. inquinatella D. & S.

K. St. Cyrus N.N.R., 1961 (E.C.P.-C.); Muchalls, one, 1974 (R.M.P.).

Catoptria permutatella H.-S.

Rare (Trail, 1878); scarce but widely distributed (Reid, 1893).

A. Dyce, Fintray, Newmachar, Oldmeldrum (Palmer, 1972); Benachie, 1973 (R.M.P.); Cambus o'May, 1973; Crathie (E.C.P.-C.).

K. Banchory R.T., one.

C. pinella L.

Scarce (Trail, 1878).

A. Bennachie (Reid, 1893); Aberdeen, one, 1968 (E.P.); Ordie, one, 1971; Cambus o'May, 1973 (E.C.P.-C.).

K. Banchory R.T., two.

C. margaritella D. & S.

Local but common (Trail, 1878).

A. Not uncommon, Inverurie and Bennachie (Reid, 1893); scarce, Braemar (Horne, 1896); Braemar 1952; Crathie 1953; Glen Derry (Cairngorm N.N.R.), one, 1971 (E.C.P.-C.).

K. Banchory R.T.

C. falsella D. & S.

A. Aberdeen (Leach, 1886).

K. St. Cyrus N.N.R., one, 1961 (E.C.P.-C.).

Scoparia cembrella L.

Rare among firs (Reid, 1893b).

A. Old Aberdeen, one (Trail, 1878); Forvie N.N.R., one, 1972 (E.P.).

K. Common at Stonehaven (Dalglish, 1894); St. Cyrus N.N.R., one, 1961 (E.C.P.-C.).

S. arundinata Thunb.

Abundant on coasts, scarcer inland (Reid, 1893).

A. Scarce, Inverurie (Trail, 1878).

K. Common, Muchalls (Trail, 1878); Stonehaven (Dalglish, 1894); St. Cyrus N.N.R., 1961 (E.C.P.-C.); Cove, 1970; Muchalls and Dunnotar Castle, common (R.M.P.).

S. ambigalis Treits.

A. & K. Common.

Eudonia crataegella Hübn.

A. Braemar and Inverurie (Trail, 1878); Forvie N.N.R., 1970; Turriff, one, 1974 (R.M.P.).

E. murana Curt.

Local but common (Trail, 1878); generally distributed (Reid, 1893).

A. Scarce, Aberdeen (Horne, 1896). Crathie; Braemar, one, 1970 (E.C.P.-C.); Dyce, Forvie N.N.R., Monymusk, Dinnet Muir (R.M.P.).

K. Common at Stonehaven (Dalglish, 1894). Muchalls

E. truncicolella Staint.

A. Dinnet Muir (R.M.P.); Ballater, one, Glentanar, one, Dinnet oak wood N.N.R. and Ordie, 1971; Cambus o'May, 1973 (E.C.P.-C.).

E. angustea Curt.

A. Two at Aberdeen (Reid, 1893). Forvie N.N.R., 1970 (R.M.P.).

K. Stonehaven, one (Dalglish, 1894).

E. mercurella L.

A. Dinnet oak wood N.N.R., one, 1971; Ballater (E.C.P.-C.).

Nymphula nymphaeata L.

Locally abundant (Reid, 1893).

A. Local, common on Scotston Moor (Trail, 1878). Dinnet, 1971 (R.M.P.).

K. Banchory R.T., one.

Evergestis forficalis L.

A. & K. Common, larvae on cabbage, cauliflower (R.M.P.).

Pyrausta purpuralis L.

Local but common (Trail, 1878).

A. Braemar (Reid, 1893). Morrone Hill N.N.R., one, 1960 (E.C.P.-C.).

K. Stonehaven, one (Dalglish, 1894).

P. ostrinalis Hübn.

A. Morrone Hill N.N.R., one, 1960 (E.C.P.-C.). (Some old records of *purpuralis* may refer to this species.)

P. cespitalis D. & S.

Local, not rare on the coast (Trail, 1878).

A. Braemar (Trail, 1878). Morrone Hill N.N.R., 1960 (E.C.P.-C.).

K. Stonehaven, one (Dalglish, 1894). St. Cyrus N.N.R., one, 1961 (E.C.P.-C.).

Opsibotys fuscalis D. & S.

Common (Trail, 1878).

A. Braemar (Cruttwell, 1912). Corby Loch, Perwinnes Moss, 1973 (R.M.P.).

K. Stonehaven (Dalglish, 1894). Banchory R.T.

Udea lutealis Hübn.

A. & K. Abundant. Larvae on *Centaurea nigra* (R.M.P.); on *Eupatorium*, *Senecio*, *Heracleum* and *Teucrium* (E.C.P.-C.).

U. olivalis D. & S.

A. Dyce, common, Corby Loch, Forvie N.N.R. (R.M.P.); Cults (A.D.); Braemar, 1970, Cambus o'May, 1973, Ballater (E.C.P.-C.).

U. uliginosalis Steph.

A. Common at Braemar (Trail, 1878). Morrone Hill N.N.R., Braemar (E.C.P.-C., R.M.P.); Glen Derry and Pools of Dee (Cairngorm N.N.R.), Beinn a Bhuid and Ballater, 1971 (E.C.P.-C.).

U. ferrugalis Hübn.

A. Scotston Moor, one (Trail, 1878); Pitcaple (Reid, 1893).

K. Muchalls, one, 1969 (R.M.P.).

Pleuroptya ruralis Scop.

Local, not uncommon (Reid, 1893).

A. Local, Shetstocksley (Trail, 1878).

K. Banchory R.T., one.

Galleria mellonella L.

K. One, in beehive, Netherley, 1942 (G.M.).

Achroia grisella Fab.

A. One, in beehive, Fintray, 1935 (G.M.).

K. Three reared from larvae in beehive, Netherley, 1942 (G.M.).

Aphomia sociella L.

Local but common (Trail, 1878).

A. Pitcaple (Reid, 1893). Ordie, one; Dinnet oak wood N.N.R., one, 1971 (E.C.P.-C.); Aberdeen 1973 (R.M.P., A.D.).

Anerastia lotella Hübn.

K. St. Cyrus N.N.R., 1961 (E.C.P.-C.).

Pyla fusca Haw.

Common on hills (Trail, 1878).

A. Common on moors between Dinnet and Braemar (E.C.P.-C., R.M.P.). Bennachie, one; Dyce, one, 1973 (R.M.P.).

Diorctria abietella D. & S.

Rare (Trail, 1878); scarce but generally distributed (Reid, 1893).

A. Between Dinnet and Braemar, quite common in pine-woods (E.C.P.-C., R.M.P.). Dyce, two, 1972 (R.M.P.).

Hypochalcia ahenella D. & S.

K. St. Cyrus N.N.R., 1961 (E.C.P.-C.).

Pempelia dilutella Hübn.

K. St. Cyrus N.N.R., one, 1961 (E.C.P.-C.).

Ephestia kuehniella Zell.

A. Aberdeen, 1930 (G.M.); Dyce, one, 1969, one, 1972; abundant in a granary at Bucksburn since 1971, larvae on ground barley (R.M.P.).

Plodia interpunctella Hübn.

A. Aberdeen, 1934, larvae on raisins (G.M.).

Rotruda saxicola Vaughn

A. Dyce, one, 1973 (R.M.P.).

K. Banchory R.T., one.

[Homoeosoma nimbella Dup.

K. Muchalls (Reid, 1893); this record is probably due to a misidentification of *R. saxicola*].

PTEROPHOROIDEA

Pterophoridae

Oxyptilus parvidactylus Haw.

A. Cambus o'May, one, 1970 (E.C.P.-C.).

Amblyptilia acanthodactyla Hübn.

Common on heaths (Reid, 1893).

A. Crathie, 1970, one larva on *Erica tetralix* (E.C.P.-C.).

Platyptilia gonodactyla D. & S.

Scarce among *Tussilago farfara* (Reid, 1893).

A. Pitcaple, larvae on *T. farfara* (Reid, 1893b). Ballater, one, 1973 (E.C.P.-C.).

P. pallidactyla Haw.

A. & K. Common.

Stenoptilia bipunctidactyla Scop.Common among scabious (Reid, 1893); larvae on *Scabiosa succisa* (Reid, 1893).

A. Dyce, Fintray, common (R.M.P.); Ordie, one, 1970 (E.C.P.-C.).

K. Cove (R.M.P.).

S. pterodactyla L.Generally distributed (Reid, 1893); larvae on *Veronica chamaedrys* (Reid, 1893b).

A. Cambus o'May, 1970 (E.C.P.-C.); Dinnet, 1971 (R.M.P.).

K. St. Cyrus N.N.R., 1961 (E.C.P.-C.).

Pterophorus tridactyla L.A. Glen Sluggan (Reid, 1893); larvae on *Thymus* (Reid, 1893b). Glen Sluggan, one, 1968, Dinnet, 1971 (R.M.P.); Morrone Hill N.N.R., one, 1973, Crathie (E.C.P.-C.).

K. St. Cyrus N.N.R., 1961 (E.C.P.-C.); 1974 (R.M.P.).

Adaina microdactyla Hübn.

K. St. Cyrus N.N.R., one, 1961 (E.C.P.-C.); one, 1974 (R.M.P.).

GEOMETROIDEA

Drepanidae

Falcaria lacertinaria L.

Local, rather rare (Trail, 1878).

A. Fairly common, Monymusk, Cluny (Cowie, 1902); Braemar (Cruttwell, 1907); Dinnet, Logie Coldstone Palmer, 1972). Morrone Hill N.N.R., one, 1959 (E.C.P.-C.); Fintray, 1972 (R.M.P.); larvae on birch (R.M.P.).

K. Durriss Forest (E.P.); Banchory R.T.

Drepana falcatoria L.

Local, rather rare (Trail, 1878).

A. Occasional, Countesswells, Murtle Den, Cluny (Cowie, 1902). Dinnet (R.M.P., E.P.); larvae on birch (R.M.P.).

K. Durriss Forest (E.P.), Banchory R.T., one.

Thyatiridae

Thyatira batis L.

Local, but rare (Trail, 1878).

A. Common, Denmore, Hazelhead, Cults (Cowie, 1902). Fintray, 1970 (R.M.P.); Park, common, 1970 (E.P.); Dinnet oak wood N.N.R., one, 1970; Dinnet, one larva, 1970 (E.C.P.-C.); Colpy, one larva, 1973 (D.B.); larvae on *Rubus fruticosus*.

K. Common (Horne, 1904). Durriss Forest, one, 1969 (E.P.); Banchory R.T., one.

Tethea or D. & S.

Rare (Trail, 1878).

- A. Rare, Braemar, Pitcaple, Inverurie, Fyvie (Reid, 1893). Dinnet oak wood N.N.R., 1971, one larva; Glentanar, 1971, larvae; Crathie, larvae on aspen (E.C.P.-C.); Braemar, 1973 (N.G.).

Ochropacha duplaris L.

- A. & K. Widespread, not uncommon.

Achlya flavicornis L.

- Not rare (Reid, 1893).

- A. Scarce, Hazelhead, Cluny, Monymusk (Cowie, 1902). Drumoak, 1968 (E.P., R.M.P.); Dinnet, larvae on birch, 1969 (R.M.P.).

- K. Scarce, Banchory (Cowie, 1902). Banchory R.T., common, 1974.

Geometridae

Archiearias parthenias L.

- A. Rare and local, Hazelhead and Braemar (Trail, 1878). Dinnet Muir, common (R.M.P.); Kintore (E.P.).

- K. Banchory (Cowie, 1902).

Alsophila aescularia D. & S.

- A. Kemnay, Monymusk (Palmer, 1972). Kintore, Dinnet R.M.P.).

- K. Banchory R.T., 1974.

Geometra papilionaria L.

- Common but local (Esson, 1890).

- A. & K. Widespread and not uncommon on moors.

Cyclophora albipunctata Hufn.

- Not uncommon, very local (Trail, 1878).

- A. Fairly common, Monymusk, Cluny (Cowie, 1902). Dinnet Muir, common, larvae on *Betula*; Kemnay, one, 1973 (R.M.P.); Fintray, one, 1974 (R.M.P.); Drum woods, 1974 (M.R.Y.).

- K. Fairly common, Banchory (Cowie, 1902). Banchory R.T., one.

Scopula ternata Schrank.

- A. Abundant at Braemar (Trail, 1878). Common, Braemar area, also on Dinnet Muir, Ordie (E.C.P.-C., R.M.P.); Kemnay, one, 1974 (R.M.P.).

Idaea biselata Hufn.

- A. Peterhead (Trail, 1878). Bucksburn, Tyrebagger Hill (R.M.P.).

- K. Banchory, scarce (Cowie, 1902). Banchory R.T., common.

I. seriata Schrank.

- A. Old Aberdeen, 1971 (D.B.); Bucksburn, one, 1972, Tyrebagger Hill, one, 1973, Dyce, one, 1973 (R.M.P.); Aberdeen, two, 1973 (E.P.); Ballater, one, 1973 (E.C.P.-C.).

- K. Near Stonehaven (Trail, 1878); Muchalls (Cowie, 1902). Banchory R.T., three.

I. aversata L.

- A. & K. Common.

I. straminata Borkh.

A. Very local, Burnharvie (Reid, 1893). Common on Dinnet Muir, Dinnet oak wood N.N.R., Ordie, Cambus o'May, Glentanar (R.M.P., E.C.P.-C.); Ballater; Crathie, one, 1970 (E.C.P.-C.).

K. Banchory R.T.

Orthonama vittata Borkh.

A. Rare, Aberdeen links (Trail, 1878); Inverurie and Fyvie (Reid, 1893). Aberdeen, one, 1970 (A.D.); Ordie, one, 1973 (E.C.P.-C.).

Xanthorhoe designata Hufn.

Generally distributed but scarce (Reid, 1893).

A. Scarce, Old Aberdeen (Trail, 1878); Murtle Den (Cowie, 1902). Glentanar, one, 1968; Kintore, one, Monymusk, one, 1970; Dyce and Newmachar (R.M.P.); Braemar, one, 1955, one, 1970; Ordie, one, 1973 (E.C.P.-C.).

K. Banchory, 1968 (E.P.); Banchory R.T., one.

X. munitata Hübn.

A. & K. Quite common.

X. spadicearia D. & S.

A. & K. Common inland, scarcer near coasts.

X. montanata D. & S.

A. & K. Abundant.

X. fluctuata L.

A. & K. Very common.

Scotopteryx chenopodiata L.

A. & K. Common.

S. mucronata scotica Cockayne.

A. Common on moors inland, particularly Dinnet Muir and Braemar area (E.C.P.-C., R.M.P., N.B.).

K. Muchalls, one, 1970 (R.M.P.); Banchory R.T., one.

S. luridata plumbaria Fab.

A. & K. Common, more generally distributed than *S. mucronata*.

Epirrhoe tristata L.

A. Local, Braemar (Trail, 1878). Common in Braemar area, viz. Glen Slugain (R.M.P.); Dinnet Muir (E.C.P.-C.).

E. alternata Mull.

A. & K. Abundant.

E. galiata D. & S.

A. Braemar, 1973 (N.G.).

K. Not uncommon at Muchalls (Reid, 1893); Portlethen (Cowie, 1902); St. Cyrus N.N.R. 1961 (E.C.P.-C.).

Camptogramma bilineata L.

A. & K. Common, abundant on coasts.

Entephria caesiata D. & S.

A. & K. Abundant on moors (R.M.P.). Larvae on *Vaccinium myrtillus* (E.C.P.-C.).

Anticlea badiata D. & S.

A. Rare, Inverurie (Trail, 1878); Pitcaple (Reid, 1893); Occasional, Nigg, Murtle Den (Cowie, 1902). Not uncommon, Dyce, Newmachar (R.M.P.); Aberdeen (E.P.).

K. Occasional, Portlethen (Cowie, 1902). Banchory R.T.

A. derivata D. & S.

A. Inverurie, rare; Fyvie, one (Trail, 1878); not scarce, Pitcaple (Reid, 1893); not uncommon, Cluny, Mannofield (Cowie, 1902). Scarce, Dyce (R.M.P.); Aberdeen (E.P.); Cults, one, 1971 (A.D.); Dinnet, one larva on rose, 1970 (E.C.P.-C.).

K. Banchory R.T.

Lampropteryx suffumata D. & S.

Local, usually rather scarce (Trail, 1878).

A. & K. Locally abundant.

Cosmorhoe ocellata L.

A. & K. Common.

Coenotephria salicata latentaria Curt.

Rather scarce (Reid, 1893).

A. Braemar (Trail, 1878); not uncommon Cluny, Monymusk (Cowie, 1902). Common, Bucksburn and Fintray, bivoltine, imagines in May and August (R.M.P.); Crathie, one, 1973, Braemar, univoltine, imagines June-July (E.C.P.-C.).

K. Banchory R.T., bivoltine.

Eulithis prunata L.

Common in gardens (Trail, 1878).

A. Aberdeen, common (Cowie, 1902). Brimmond Hill, one, 1971; Dyce, one, 1972, one, 1973 (R.M.P.); Aberdeen, one, 1971 (E.P.); Dinnet oak wood N.N.R., one, Ballater, one, 1971 (E.C.P.-C.).

K. Banchory R.T., one.

E. testata L.

A. & K. Common.

E. populata L.

A. & K. Common. Larvae on *Vaccinium myrtillus* (E.C.P.-C., R.M.P.) and *Calluna* (E.C.P.-C.).

E. mellinata Fab.

A. Newmachar, one (Palmer, 1972).

K. Cove, one (Palmer, 1972).

E. pyraliata D. & S.

A. & K. Common.

Ecliptopera silaceata D. & S.

A. & K. Widespread but not common.

Chloroclysta siterata Hufn.

Local, usually scarce (Trail, 1878).

A. Not scarce, Hazelhead, Countesswells, Murtle Den (Cowie, 1902). Kintore (R.M.P.); Turriff (D.G.).

K. Banchory R.T.

C. miata L.

A. & K. Common.

C. citrata L.

A. & K. Very common, Larvae on *Vaccinium myrtillus* (R.M.P.).

(to be continued)

Notes and Observations

THYMELICUS LINEOLA OCHSENHEIMER (ESSEX SKIPPER) NEAR BATTLE, SUSSEX IN 1974. — I should like to place on record sightings of this butterfly in two localities near Battle, Sussex, about seven miles from the south coast. The first habitat was a clearing in Archer Wood where a rather steep bank, covered with various grasses and flora, ran for about 100 metres before disappearing into scrub, longer grass and small conifers.

On 20th July *Ochlodes venata* L. (Large Skipper), *Thymelicus sylvestris* Poda (Small Skipper) and *T. lineola* were flying in small numbers and I caught several specimens to confirm identification. Incidentally, in late May, *Erynnis tages* L. (Dingy Skipper) and *Pyrgus malvae* L. (Grizzled Skipper) were also on the wing there making a total of five species of skipper for this very small area.

On 21st July a much stronger colony was located in a rough meadow near the site of the historic battle of 1066. *Sylvestris* and *lineola* were flying together there and a sample catch suggested that numbers were about equal for each species. — G. SUMMERS, 23 West Close, Stafford, Staffs., ST16 3TG.

ISOTRIAS RECTIFASCIANA (HAWORTH) IN NORTH KENT. — Whilst walking along the seaward side of the sea wall at Stoke saltmarsh, Kent on 27th May 1974, I disturbed a few specimens of *Isotrias rectifasciana* (Haworth). They were very local, occurring in only two spots along the wall. Bradley, Tremewan and Smith, *British Tortricoid Moths* (1973), state that although the life history appears to be unknown, a pupa had been beaten from hawthorn, the moth frequenting hedgerows containing elm, hawthorn, blackthorn, etc. The nearest hedgerow, consisting entirely of elm, was 200 and 300 yards from the two spots. No moths were beaten from these elms or from the landward side of the sea wall.

It therefore seems likely that the seaward side of the sea wall is their preferred habitat in this locality. The moths flew up from the herbage, soon settling again amongst the mass of *Atriplex* and other plants, one or more of which probably providing the moth's food and shelter.

Is this moth really a "common species in hedges and lanes" as Bradley, Tremewan and Smith suggest, as this is the first time I have met with it in my four years of collecting, neither have I heard of it being taken. Surely a common species which is "easily beaten out during the day" would come to light, so to speak, more than once in four years? It is worthy of note that the two specimens figured by Brian Hargreaves in *British Tortricoid Moths* are also from North Kent. — STEVEN E. WHITEBREAD, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent. 1.v.75.

CROCIDOSEMA PLEBEJANA ZELLER IN CORNWALL. — I collected some seed capsules of Tree Mallow (*Lavatera arborea* L.) at the Lizard and Porthleven on the 9th and 11th September 1974 respectively in the hope of obtaining larvae of this local Tortricoid. Upon examining the capsules a few days later I found I had a single larva from each locality and from the Porthleven one later bred a *Crocidosema plebejana*. This individual probably emerged sometime in October or November, but unfortunately owing to its hiding in the surrounding Kleenex tissue remained unnoticed until early this year when a closer inspection of the box containing it revealed its dessicated corpse. I am unaware that *C. plebejana* has previously been taken on the Cornish mainland though of course it occurs in the Scilly Isles and was first recorded in this country from Devon as far back as 1900. There is an interesting account of the species by H. C. Huggins and R. M. Mere in 1958, *Entomologist*, **91**: 20-22. — J. M. CHALMERS-HUNT.

EUPITHECIA IRRIGUATA HUBNER IN HAMPSHIRE IN 1975. — I took near Brockenhurst on 26th April 1975 six specimens of this local "Pug". They came to M.V. light and were all in excellent condition. In late March this year I also took four melanistic specimens of *E. abbreviata* Stephens at the same spot. — Brigadier E. C. L. SIMSON, Fyfield Grange, Nr. Andover, Hampshire.

HETEROGRAPHIS OBLITELLA (ZELLER) IN NORTH KENT. — H. C. Huggins (*Entomologist's Record*, **70**: 80) suggested, after the large colony of this species died out at Pitsea, that there was a much better chance of this species surviving winters in Kent than in Essex due to the very heavy clay soil of the latter county. This may or may not be so, but I have now taken 12 specimens of this moth in the last four years. All were at m.v. light in my garden or two miles away at Higham Canal. As I only discovered the identity of this moth late in 1973, only the 1974 dates can be regarded as complete. I am certain, however, that in 1973 the moth was more common than in 1974, leading me to believe at the time that it must be a generally common moth. I did not run the trap before 1971 or after July in 1972.

The dates of capture were 14/7/71 (Canal); 20/7/71 (two); 20/8/71; 27/8/73; 28/8/73; 27/7/74; 7/8/74; 22/8/74 (two); 23/8/74 (two). From these dates it is difficult to decide whether they were immigrants or natives that are surviving the recent mild winters. It is interesting to note that Mr. J. M. Chalmers-Hunt took the first Kentish specimen on 22nd June 1956 on the Isle of Sheppey (*Entomologist's Record* **68**: 246) and Ian Watkinson has taken one recently at Sittingbourne. It is possible, therefore, that the moth is breeding on the North Kent coast in the marshes or saltmarshes. — STEVEN E. WHITEBREAD, 2 Twin Cottage, Grove Farm, Higham, Nr. Rochester, Kent. 24.iv.75.

AN UNUSUAL BROOD OF *LYCAENA PHLAEAS* L. — I recently recorded the capture of a female specimen of *L. phlaeas* ab. *radiata* Tutt (*Ent. Rec.*, 86: 248). The butterfly was caged and during the course of a few days it deposited about 100 eggs. Forty of these hatched, and after a few losses among the small larvae the others thrived, feeding up without showing any inclination to hibernate. Eventually 27 pupae resulted during early September from which the butterflies emerged later that month. Meanwhile a pairing cage had been prepared, with potted foodplant and receptacles for flowers. Alas, this effort was in vain for all 27 pupae produced females!

As might be expected there were no ab. *radiata* but all the specimens were particularly large and some conformed to ab. *caeruleopunctata* Ruhl. Most of them were released in the locality from which the parent came in the hope that one or two might find mates and thus add to the store of *radiata* genes. — T. D. FEARNEHOUGH, 26 Green Lane, Shanklin, Isle of Wight.

Current Literature

Discovering Garden Insects and Other Invertebrates by **Anthony Wootton**. Shire Publications Ltd. 79 pp. + 18 b. & w. plates. Paperback, 45p.

The author, who is editor of *The Countryside*, has managed, by thoughtful selection, to include a fair range of invertebrates likely to come to the notice of gardeners in most parts of England.

After a chapter on classification, there follows a survey of the fauna of the various micro-habitats of the garden, the flower border, soil, under stones, in out-houses, in compost heaps, etc. The 58 photographs are of excellent quality. The final chapter suggests ways of studying and attracting insects, which oddly omits M.V. traps. There is a glossary, a bibliography of books for further identification and an account of Societies and Journals for those who wish to look further. It should be noted that the *Entomologist* has ceased publication.

We question the suggestions that: the privet hawk is rare; that Catocalids hide by day in wood stacks, or that *Ophion luteus* is harmless — it can be very painful as most night collectors know by experience. In general, however, this is a useful little reference book for the non-specialist. — E.H.W.

Fauna Entomologica Scandinavica, Volume 1: The Stratiomyioidea (Diptera) of Fennoscandia and Denmark by **R. Rozkosny**. 456 line drawings by **Mrs. G. Lyneborg**. 152 pp., map and eight distribution tables. 8vo., stiff wrappers. Scandinavian Science Press Ltd., Gadstrup, Denmark. U.K. agent: E. W. Classey Ltd. 1973. £3.60.

The publishers state that this is the first of more than 50 volumes now in preparation that will treat thoroughly of the entire North European entomological fauna. They offer subscribers to the whole series a 30% discount, and intend publishing two to five volumes annually. The series will be of particular interest to British entomologists for the following two reasons: (1) All the volumes will be in English. (2) Full treatment will be given to all British species whether or not their occurrence in Fennoscandia or Denmark is likely.

This volume deals with all 50 species of Stratiomyioidea occurring in Scandinavia, N. Germany and Great Britain. It begins with short chapters on the Literature on the Stratiomyioidea of Denmark and Fennoscandia; Characteristics of Stratiomyioidea; Immature stages; Biology and distribution. There are keys to the Subfamilies and Genera, followed by the main part of the work. In this, each species is keyed then covered by a short description together with information on local and overall distribution, habitats and biology, synonyms with their dates and bibliographical references, and adequate cross-referencing to each of the many finely executed illustrations. Finally, there is a list of abbreviations of terms in use, a bibliography of 131 items referred to in the text, an index of genera and species with the valid names underlined, and a detailed analysis of the occurrence of all species in the entire area.

The book is clearly printed on good quality paper. The format and general presentation are excellent, and the price reasonable. — J.M.C.-H.

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My personal collection of British Butterflies, containing 1,700 specimens of which over 300 are aberrations—some unique and well-known, e.g.: *L. phlaeas*, ab. *berviniensis* Smith. 1969. Figured page 73. New South's British Butterflies, *Vanessa virginiensis*, taken Yelverton, Devon. *A. agestis*, ab. *pallidior*. *A. cardamines*, ab. *aureoflavescens* (v. extreme), and Halved gynandromorph, etc. and many very extreme, especially in *paphia*, *selene*, *enphrosyn*, *athalia*, *coridon*, *bellargus*, *icarus*, *cardamines*, *jurtina*, *urticae*, *napi*, *phlaeas*, *megea*, *aurinia*, *cinxia*, *aglaja*, *iris*, etc., etc.

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EXCHANGES AND WANTS

For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to S. N. A. Jacobs, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Back numbers.—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—S. N. A. Jacobs, 54 Hayes Lane, Bromley, Kent.

Wanted.—HYDROPTILIDAE (Trichoptera) Specimens or data from any part of the British Isles. Identification will be provided, if required by the sender. Material to:— Miss J. E. Marshall, Entomological Dept., Natural History Museum, Cromwell Road, South Kensington, London.

Wanted During 1975. — Livestock (ova, larvae or pupa) of *Colias croceus* (Clouded Yellow) and *C. Hyale* (Pale Clouded Yellow).—Please write stating quantity, price, and place of origin, to: D. J. Tolhurst, 13 Armytage Close, Hoo, Rochester, Kent, ME3 9AP.

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Orthoptera: D. K. Mc E. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

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AND JOURNAL OF VARIATION

Edited by J. M. CHALMERS-HUNT, F.R.E.S.

with the assistance of

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C. A. COLLINGWOOD, B.SC., F.R.E.S.

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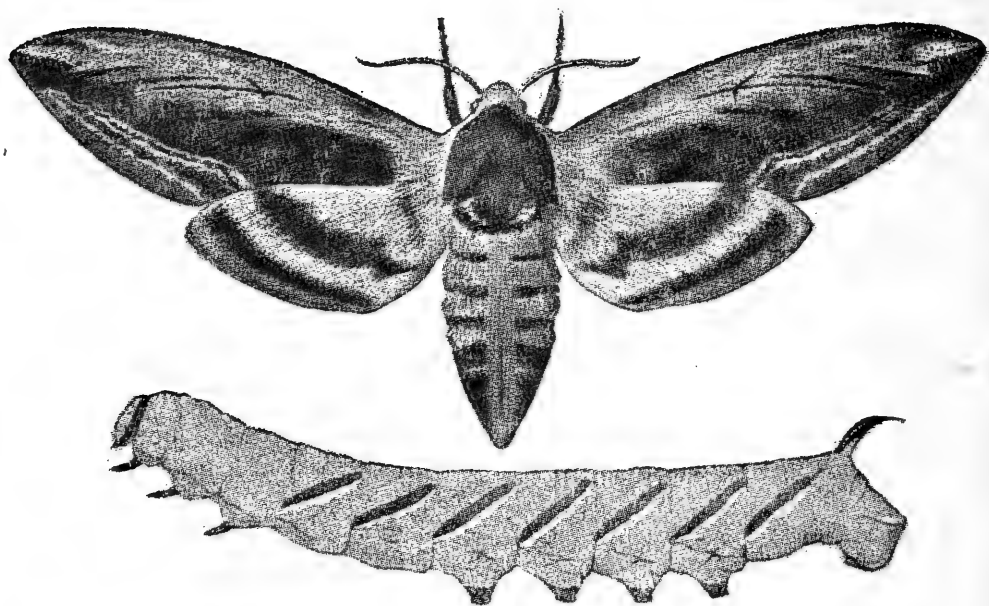
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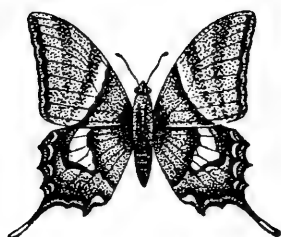
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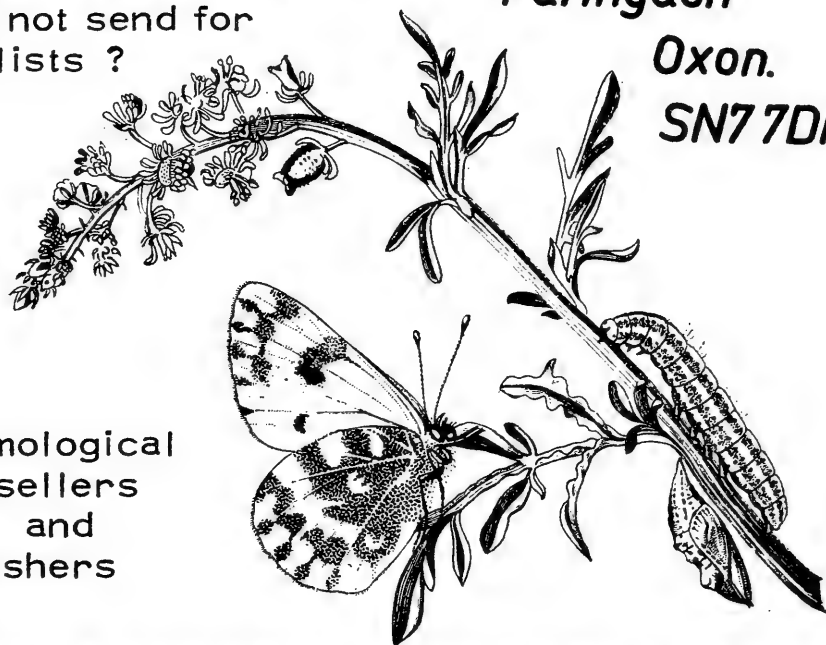
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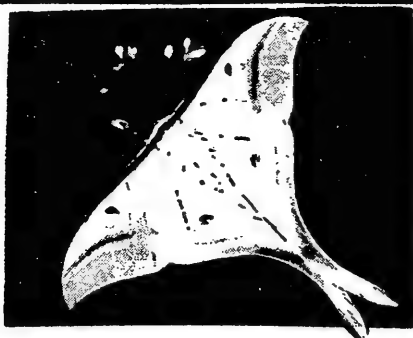
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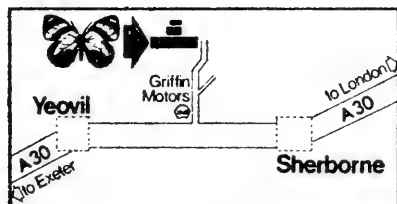
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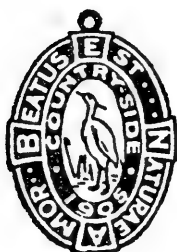
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Collecting Lepidoptera in Britain during 1974

By C. G. M. DE WORMS, M.A., Ph.D., F.R.E.S.*

As in the two previous winters the new season opened with some very mild weather at the start of the year. In fact the daytime temperature during the whole of January was above 50°F. almost daily with as much as 57°F. on the 16th. Quite a number of the early species were already out when I visited Dr. Kettlewell at his home at Steeple Barton, near Banbury, on the 22nd. These included *Phigalia pedaria* Fab., *Alsophila aescularia* D. & S. and *Theria rupicaprararia* D. & S. February too opened with a very mild spell and again the daily maximum kept well up in the 50's for most of the month. The first blooming of daffodils in Surrey on the 15th coincided with the appearance of *Orthosia cruda* D. & S. and some late *Erannis leucophaearia* D. & S. *Orthosia stabilis* D. & S. followed soon on 18th February with *Achlya flavicornis* L. on the 25th. In spite of a much cooler start to March *Biston strataria* Hufn. was out on the 1st which saw many sallows in full bloom. The 10th was the only occasion when much snow fell in the south-eastern areas. A visit to East Kent on 15th March did not yield anything of note, even in the Hamstreet Woods. During this part of the month several female *Conistra rubiginea* D. & S. came to light near Woking. Ova were obtained which produced some fine bred species in the late summer. On 29th March I motored to Exeter to attend an ornithological conference which took place in extremely sunny conditions with the thermometer in the 60's. The last day of the month saw quite a number of Peacocks flying in woods near Broadclyst. However, the New Forest on 1st April did not provide any of the hibernators, though *Aglais urticae* L. and *Gonepteryx rhamni* L. were flying round sallows on Horsell Common on the 2nd when the temperature was well above 60°F. I left for Jamaica on 6th April returning on the last day of that month.

The first ten days of May were relatively cool with the daily reading below 60°F. The first Pierids were observed on the 9th. A visit to Dorset the next day in the vicinity of Blandford took place on 10th May, but conditions were far from congenial and nothing of interest was noted in that region during the subsequent three days. A return to warmth started on the 14th with the temperature daily above 70°F. The Whites, especially *Pieris napi* L., were now out in full force accompanied by a good many *Anthocharis cardamines* L. The latter species was well in evidence when Mr. J. L. Messenger and I visited the Chiddingfold area on 9th May and were delighted to see *Leptidea sinapis* L. flying in considerable numbers, having made a remarkable come-back in that region. *Pararge aegeria* L. was well to the fore as also was *Gonepteryx rhamni* L. The first *Clossiana euphrosyne* L. were seen skimming over the low herbage on this very warm spring day and with them were also *Coenonympha*

* Three Oaks, Shores Road, Horsell, Woking, Surrey.

pamphilus L. and *Pyrgus malvae* L. males. The last ten days of May were distinctly cooler. Between the 24th and 29th I was in Northern France and Belgium. A visit to Alice Holt Forest on the 30th was most disappointing with only a few *Pieris napi* about. Searching and beating willows did not yield anything of interest, except a few *Orthosia* and *Citria* larvae.

A very sunny but windy day ushered in the month of June. On the 1st I accompanied Mr. Russell Bretherton to Ranmore Common and the downs sloping southwards. We were extremely pleased to find *Lysandra bellargus* Rott. flying in fair numbers in both sexes as this species has been on the decline in many of its former haunts. *Polyommatus icarus* Rott. was also reasonably numerous as also was that very pretty little geometer *Scopula ornata* Scop. which was disturbed freely among the long grass. Also on the wing were the day-flying noctuids *Euclidimera mi* Clerck and *Phytometra viridaria* Clerck. The following day I joined Dr. John Holmes at Holybourne, near Alton. But the sky was very dull and mainly overcast when we surveyed some of the local downs and woodlands where my companion had seen *Strymonidia w-album* Knoch in great plenty two years earlier, but the beating of the local elms failed to dislodge any larvae of this little insect or any of *Ptilophora plumigera* D. & S. which occurs in this spot with its profusion of maples. Besides the usual Whites the only insect of interest was the Large Skipper at this early date. 4th June saw yet another very fine and warm day when I toured the area south of Chiddingfold, near Ebernoe, but beating of willows yielded little of interest. However, *L. sinapis* was still plentiful in its haunts further to the north, while *Pieris napi* was abundant. I was once more in Kent on 8th June, but under much cooler conditions and little came to light in the Hamstreet woods on the evening of the 9th except *Clostera curtula* L., *Lophopteryx capucina* L., *Diarsia festiva* D. & S. and *Anagoga pulveraria* L. Even Hoads Wood earlier that day was most disappointing with only a few Whites flying and no larvae. The next few days were again warm and I saw a good many insects at m.v. light on the edge of Chobham Common on the night of the 12th. These included *Pheosia gnoma* Fab., *Tethea ocularis* L., *Bena prasinana* L., *Drepana falcataria* L., *Lithacodia fasciana* L., *Electrophaës corylata* Thunb., *Plagodis dolabraria* L., *Semiothisa alternaria* Hübn., *Ectropis extersaria* Hübn., *Pseudoboarmia punctinalis* Scop. and a female of *Bupalus piniaria* L.

Early on 14th June Mr. J. L. Messenger and I set out with the thermometer at 73°F. for the south-west, travelling via Andover and Mere to Honiton and Exeter and finishing up at Hope Cove, near Salcombe, where I was last in September 1970. We had not sampled this coast before in high summer. We were able to run our m.v. trap once more at the Cottage Hotel there and to very good advantage. A great concourse of insects visited it on our two nights with 190 individuals on each occasion and 56 species of macros on the first night and 49 species of macros on that of 15th June. We were especially pleased to

find in it several fine fresh examples of *Hadena barrettii* Doubleday on each occasion and a very dark *Ammagrotis lucerneae* L. on the night of the 15th when we saw five species of the Sphingidae including *Sphinx ligustri* L., *Laothoe populi* L., *Smerinthus ocellatus* L., *Deilephila elpenor* L., and *D. porcellus* L. Among other species of note were *Harpyia furcula* Clerck, *Cerura vinula* L., *Notodonta ziczac* L., *N. dromedarius* L., two female *Dasychira pudibunda* L., *Arctia villica* L., *Cynthia mendica* Clerck, *Apatele megacephala* L., *Hadena lepida* Esp., *H. rivularis* Fab., *H. bicruris* Hufn., *H. serena* D. & S., *H. conspersa* D. & S., *Ceramia pisi* L., *Leucania l-album* L., *Cucullia umbratica* L., *Caradrina ambigua* D. & S., *Plusia iota* L., and *Unca triplasia* L. Among the geometers were *Sterrha subsericeata* Haworth, *Scopula promutata* Guen., *Perizoma affinitata* Stephens, *Electrophaes corylata* Thunb., *Epirrhoë rivata* Hübn., *Eupithecia pulchellata* Stephens, *Lyncometra ocellata* L., *Gonodontis bidentata* Clerck, and *Cleora rhomboidaria* D. & S.

Conditions were very warm on 15th June when we motored to Newton Ferrers, but apart from *Pieris napi* and *Polymmatius icarus* Rott. little of interest appeared to be on the wing. The following morning of the 16th we continued our journey westwards via Liskeard and Bodmin Moor where we were caught in a deluge. We reached the Mullion Cove Hotel late that afternoon and this was to be our headquarters for the next ten days. But the weather had changed for the worst and we had a very mixed stay in these delectable surroundings where we concentrated mainly on exploring the Lizard Peninsula. But we saw little of note there until 19th June when on our return from a day in Falmouth we halted on the Goonhilly downs which provided us with quite a lot of insects, notably a number of *Clossiana selene* D. & S. Quite a few *Diacrisia sannio* L. were also on the wing together with the Little Emerald *Chlorissa viridata* L. of which we obtained females which produced quite a lot of ova and subsequent larvae. One female *Ortholitha umbriifera* Prout was obtained and we saw a number of the Pyrale *Hapalia olivalis* D. & S. A visit to Kynance Cove on 20th June only provided again several *C. selene*.

The best day of our visit was 21st June when we travelled via Penzance to the southern coast, near Lands End, to explore one of the rugged coves in that vicinity, but in spite of a very fine and sunny day we only saw some of the regular insects such as *P. icarus*, *Ochlodes venata* Br. & Grey, while *Maniola jurtina* was just appearing. A visit on the 22nd to the eastern end of the Lizard at Porthoustock only yielded some more *C. selene* and larvae of *Cucullia verbasci* L. in plenty near the beach there. On 24th June we thought we would explore the area near the Loe Bar, just east of Porthleven. It was a dull and windy afternoon when we walked the mile along the rugged coastal road to the mouth of the Bar. Suddenly Mr. Messenger called out that he had taken an *Atolmis rubricollis* L. and within a few minutes the whole air seemed to be alive with this very attractive Footman careering about on the low cliff and

we even took two right on the seashore. This remarkable flight only seemed to last for about ten minutes and we were puzzled about the origin of this normally wood-loving species. We noticed some large fir trees bordering the Loe (Lake) and it is possible the trunks of these may have provided the lichens as pabulum for the larvae. We heard later that large numbers of these insects had been seen flying by day in another part of Cornwall, but not right on the coast. This phenomenon was indeed, as it were, a flash in the pan as a further visit to this spot the following day, admittedly in heavy rain, failed to reveal any more of this elusive species. We obtained a large batch of ova from one female. These duly hatched, but unfortunately the young larvae failed to feed up. This was our final episode during our time on the Lizard. During our stay at the Mullion Cove Hotel facilities were accorded us for running our m.v. trap on a lawn overlooking the steep cliff down to the cove, with very marked success. During nine nights we recorded almost 1,300 individuals (macros) comprising 95 species. Many of the species were similar to those we had seen at Hope Cove, but with a good many additions. Hawkmoths were well to the fore with plenty of *Deilephila procellus* L. and as many as 17 on the night of 22nd June. There was a fair number of *D. elpenor* L. and *Smerinthus ocellata* L. but only one *Sphinx ligustri* L. *Arctia villica* L. was another regular visitor with a single *Diacrisia sannio* L., also on the 22nd. Among the noctuids *Hadena barrettii* was almost a nightly arrival with some very fine fresh females. There was also quite a varied selection of *Hadena conspersa* D. & S. Only one *Anaplectoides prasina* D. & S. was recorded. *Cucullia umbratica* was to the fore again and the *Plusias* were well represented by *P. iota* L. and *P. pulchrina* Haworth, but a feature was the sudden influx of *Plusia gamma* L. with as many as 140 on 23rd June. Other probable migrants included several *Peridroma porphyrea* D. & S., and *Agrotis ipsilon* Hufn. Among the geometers, not seen in South Devon, were *Lygris pyraliata* D. & S., *Perizoma alchemillata* L., *P. flavofasciata* Tunb., *Eupithecia castigata* Hübn., and *Perconia strigillaria* Hübn.

On 25th June in very poor weather we left Mullion and travelled, via St. Austell and Lostwithiel, to a locality in the Tamar Valley area where *Mellicta athalia* Rott. had been plentiful but was virtually over at this early date. Conditions were very overcast with light rain and none of this charming butterfly was seen. We then went on via the western side of Dartmoor back to Hope Cove which was again our haven for two nights. They once more provided a concourse at the m.v. trap with 300 visitors and 56 species on the 26th. Most of the species were very much the same as we had seen two weeks earlier. *Agrotis trux* Hübn. was just appearing and quite a number was seen at light. *H. barrettii* reappeared as also did *Leucania l-album*, several very characteristic *Procus versicolor* Borkh. and *Semiothisa alternaria* Hübn. *Cucullia umbratica* was especially numerous. On 27th June we motored over to some rich ground north of Buckfastleigh where we happened to meet Capt. Peter

Gainsford, but conditions were too dull and cool for any profitable collecting there or later on on some bleak part of Dartmoor, where nothing could be flushed from the deep heather.

We left South Devon on the morning of 28th June and halted for a short time in a lane just outside Kingsbridge. There was a lot of goosegrass there growing along the high hedge-row. Beating this herbage we flushed several *Epirrhoë rivata* Hübn. and *Euphyia rubidata* D. & S. We obtained quite a lot of ova from the latter species, but the young larvae failed to feed up. Late that evening we arrived back in Surrey after, on the whole, quite a successful two weeks in the south west.

The following day I set out once again, this time to the New Forest. En route I stopped for an hour in Alice Holt Forest where little was on the move. I reached Sway in the afternoon to stay with Admiral Torlesse. In the early evening we surveyed a local heath where a small area was pink with the wild gladiolus, a remarkable sight, but little was flying till after dark when we set up our m.v. lights in part of Holmesley Enclosure. Insects began coming quite freely and by midnight we had recorded 33 species. The most interesting were three very fresh *Moma alpium* Osbeck. Other visitors included single examples of *Hyloicus pinastri* L., *Deilephila elpenor* L., *Stauropus fagi* L., *Thyatira batis* L., *Craniophora ligustri* D. & S., *Drepana falcataria* L., *Polia nebulosa* Hufn., and *Laspeyria flexula* D. & S. Among the geometers were *Cosymbia linearia* Hübn., *Eupithecia pulchellata* Stephens, *Semiothisa alternaria* Hübn., *Plagodis dolabraria* L., *Ellopiopsis fasciaria* L., *Ectropis extersaria* Hübn., *Campaea margaritata* L., also *Apoda avellana* L. The final day of the month was somewhat dull, but it did not prevent a few of the first male *Plebeius argus* L. flying on the heath in Rhinefields Enclosure, but searching bog myrtle in that vicinity only yielded a single larva of *Orthosia gracilis* D. & S.

The second half of the year opened with some rather dull and windy conditions. *Plebeius argus* was well out in the Chobham Common area. On 3rd July, a much more favourable day, I revisited Alice Holt Forest to join a small party to survey some special parts of that area. Among those who attended were Dr. John Holmes of Bordon, Mr. and Mrs. Norman Riley of Wimbledon, together with Mr. Stearn and Mr. Waring of the Forestry Commission. The chief object of our attention was a little-known part of the forest called the Straights Enclosure, but little of note was on the wing except a few *Maniola jurtina* L., *Pararge egeria* L., *Aphantopus hyperanthus* L. and we saw a single *Limenitis camilla* L. *Plebeius argus* was again in good numbers near Chobham on 7th July. That evening I flew out to Greece with Mr. R. Bretherton returning on 25th July.

We were welcomed back with some very fine and warm weather with the thermometer in the 70's. A visit again to Alice Holt Forest on 30th July only provided a single female *Thecla quercus* L., while *Maniola tithonus* L. was far from numerous. Little too was to be seen when I surveyed the Petworth area on 1st August and it was disappointing not to see any Wood

Whites in the Chiddingfold region. On the 2nd I revisited Alice Holt Forest about midday in rather dull conditions. While walking up one of the rides I soon spotted a male Purple Emperor with its wings open at rest on the ground, but it was obviously somewhat damaged, so was released after capture. I then continued my journey to Portland where my haven was once more the Pennsylvania Castle Hotel where Mr. R. M. Craske was already staying. Only a number of *Ouropteryx sambucaria* L. were seen in the grounds that evening. The next day, 3rd August, broke fine and warm when Mr. Craske and I surveyed the island for its butterflies, mainly *Lysandra coridon* Poda. This species had already been out in this area for at least two weeks and was now at its zenith in the greatest profusion I have even seen it. Both sexes seemed to be in hundreds in a few special spots, mainly round some of the quarry workings. They were a sight to observe as the insects rested on grasses towards evening as many as 20 sometimes on a stem. Aberrations were not numerous in spite of this great concourse. However, we obtained a fine male of the form *ultra-fowleri* with all border lunules white instead of black, a most striking form. The local form of *Eumenis semele* L. also called for a good deal of attention, since this showed a remarkable degree of variation with some examples being devoid of some of the upperside spots, while others had extra spotting. They were very difficult to catch as they flitted about amongst the big and rough stones of the quarry areas. A deluge hit Portland on 4th August which made all collecting out of the question. However, the elements relented the next morning when we once more surveyed the various special localities for Blues. On this occasion the females of *L. coridon* seemed to be more plentiful, but no further major varieties were seen. There were quite a few second brood *Cupido minimus* Fuessly to be seen. The product of running our m.v. trap three nights at the hotel was somewhat disappointing for the time of year. The chief feature on the 4th was a big influx of some 50 *Eilema lurideola* Zink. The few other visitors of interest included *Drepana binaria* Hufn., *Malacosoma neustria* L., several *Agrotis trux* Hübn., *Apamea sublustris* Esp., *Caradrina ambigua* D. & S., *Leucania conigera* D. & S. and a few *Plusia gamma* L.

On my way back to Surrey on the afternoon of 5th August I called in at the Whiteparish woods south of Salisbury, but nothing was moving in spite of bright sunshine. There was some warm weather for most of the first part of August. On the 7th I went to Pewley Down on the outskirts of Guildford where a good many *L. coridon* were still flying. Again it had been relatively abundant in this inland locality. *Zygaena filipendulae* L. was also in fair numbers. But dull conditions supervened on the 10th and White Down, near Gomshall, yielded a blank that day. The temperature returned to the 70's by the 15th and remained about this range when I revisited the New Forest on 17th August to stay once more with Admiral Torlesse at Sway. Holmesley Enclosure was again our venue for night operations.

We sugared on posts along the road, but the only visitors were a few *Amphipyra pyramidea* L., a single *Thyatira batis* L. and a few *Triphaena pronuba* L. At our m.v. light we had several *Lymantria monacha* L., also *Pterostoma palpina* L., *Euproctis similis* L., *Euschesis janthina* L., *Sterrhya aversata* L., *Anaitis efformata* Guen., and *Semiothisa liturata* Clerck. There was a fair concourse at my host's m.v. trap with a spate of *Apamea secalis* L. also *Lampra fimbriata* Schreber, *Agrotis puta* Hübn., *Deuteronomos alniaria* L., and a worn female *Rheumaptera undulata* L. The only butterflies on the wing in Rhinefields on the 18th were *Maniola tithonus* L. I went over again to White Down on 21st August and this time quite a number of *L. coridon* were still flying and still quite fresh, as also were females of *Hesperia comma* L. *Polyommatus icarus* Rott. was also on the wing there. The bright and warm weather continued well into the second half of the month, though it was less fine when I surveyed the downs north of Salisbury on the 23rd without much success. However, it was once more very sunny when I accompanied my relative over a hidden valley on the Dorset border, near Chesilbourne. Here I was pleased to see *L. coridon* again flying in plenty with a few *Heodes phlaeas* L., and *P. icarus*. But the next two days were dull and rainy with no collecting possible. An m.v. trap run two nights at Winterbourne Stickland where I was staying with my relative Major General W. Beddington, produced quite an assortment of species which included among some 250 visitors and 25 species *Pheosia gnoma* Fab., *Eilema griseola* Hübn., *E. lurideola* Zink., *Agrotis ypsilon* Hufn., *Tholera cespitis* D. & S., *Procus furuncula* D. & S., *Diarsia rubi* View., *Leucania impura* Hübn., *Hydriomena furcata* Thunb. and *Deuteronomos fuscantaria* Stephens, besides a host of *T. pronuba*. Leaving the Blandford area on 27th August I called in at Badbury Rings where the usual Pierids were flying, together with a number of *Maniola jurtina* L. and *Coenonympha pamphilus* L. After a visit to Mr. and Mrs. R. Hatton at Long Rowe, near Wimborne, where nothing was on the move, I went on to Mr. and Mrs. Dixon at Micheldever where their garden was fairly alive with *P. rapae* and *P. napi*, but no Vanessids were apparent, the feature of this late summer period. The thermometer touched the 70's during the last days of August and it was somewhat dull when I travelled to Folkestone on the 30th. However, on the last day of that month the sun shone continuously when I went over to Dungeness, but nothing was at rest on the famous railway posts nor did *typha* stems yield anything. But a few full-fed larvae of *Calophasia lunula* Hufn. were very apparent on yellow toadflax near the lighthouse. Since there was nothing flying there, I headed back eastwards to the downs above Folkestone where I was glad to find the second brood of *Lysandra bellargus* Rott. just starting to appear together with quite a few *P. icarus*.

I spent 1st September with Mr. Michael Tweedie and his family at their home just outside Rye, but in spite of fair conditions nothing of note was seen there. I returned to Surrey

the next day in a deluge. In fact the first week of this month was one of the stormiest for this period of the year that I could remember. The next ten days covering the middle of September were mild but with little sun. Whites were fairly prevalent, but there was a distinct lack of the Vanessids on buddleia and michaelmas daisies, with a great dearth of Red Admirals in the south-east. My next expedition took me on the 20th to the Cotswolds to stay with Mr. and Mrs. Ronald Demuth at their home near Sapperton. We went the next day on a tour to the Forest of Dean and then to the area of the Brecon Beacons returning via Chepstow and the Severn Bridge, but in spite of fairly fine conditions there was little to be seen on the wing except for a few Pierids. The 23rd was spent at the Wildfowl Trust where again I did not see any butterflies. During my three nights my host ran his m.v. trap which produced quite an assortment of the general run of common species which also included two *Eremobia ochroleuca* D. & S., several *Aporophyla lutulenta* D. & S., a lot of *Amathes c-nigrum* L. and *Omphaloscelis lunosa* Haworth and a single *Larentia clavaria* Haworth. I made my way back to Surrey on the 23rd in very wet and dull weather. This was the run of conditions for the last week of September which by no means lived up to its reputation as a second summer. And as it turned out October was on the whole equally unpropitious and very little profitable collecting was possible throughout the whole month. No long-distance expeditions were undertaken during this period which was for the most part very wet but fairly mild, though somewhat below average temperatures. It was virtually devoid of frosts in the south. Insects showed a great dearth during this autumn spell with hardly any butterflies seen and very few moths coming to light. There was little improvement during November, another mild but very wet month. On the 10th I accompanied Dr. John Holmes on a walk round part of Woolmer Forest, near Bordon in Hampshire. It was a very mild day for the time of year with the thermometer at 55°F., but in spite of the very pleasant conditions no lepidoptera were forthcoming either by day or on a large bank of ivy in Dr. Holmes's garden, which we searched after dark. The middle of the month on 16th November I paid my customary autumn visit to Kent, but here again nothing was on the move either in the Dover or Folkestone areas. On the way home on the 19th I ran a Heath light for a short time on the downs near Dorking, but no *Ptilophora plumigera* D. & S. put in an appearance. The rest of November remained with very equable temperatures and no frosts with the result that many species started to emerge well before their normal dates. On 1st December several *Erannis defoliaria* L. were at rest after dark in the Virginia Water area together with plenty of *Operophtera brumata* L. The amazingly mild conditions persisted throughout the month and when it was as much as 60°F. on Boxing Day there was a phenomenal burst of precocious insects such as *Phigalia pedaria* Fab., *Erannis leucophaearia* D. & S. and *Theria rupicaprararia* D. & S. in north-west Surrey.

So ended what is generally claimed to be one of the leanest years for the lepidoptera, certainly since the last War and possibly for this century. The usual common migrants were all extremely scarce, even the Silver-Y except perhaps in the south-west of England. The large migrant Sphingidae were likewise recorded in very small numbers with only a handful of the Bedstraw Hawk (*H. gallii*) after its invasion of 1973. Hardly was any species in the ascendancy except perhaps the Chalkhill and Small Blues which were in exceptional numbers in some localities. And above all the weather with a great deal of cold and rain in the summer did not help this very disappointing season of 1974.

Notes and Observations

AMPHIPYRA PYRAMIDEA L. OR A. BERBERA RUNGS CLUSTERING UNDER BARK. — In early August 1965, when on an insect ecology course at Flatford Mill Field Centre, East Bergholt, Suffolk, I had an experience exactly parallel to that described by Mr. A. A. Allen (*Ent. Rec.*, **87**: 24-5). We were stripping samples of loose bark from dying elms to estimate the population of bark beetles by counting their galleries, when I got a surprise as a succession of nine copper underwings shot out from under one piece where they had been closely packed. Nobody else recounted a similar experience. As I am not a coleopterist I do not often peel off bark from standing timber and I dismissed the occurrence as memorable, but probably commonplace. It is therefore of interest that such a long-standing prober into obscure places as Mr. Allen should have only this one recent experience of an aggregation of Copper Underwings to recount.

I am led to conjecture how and why such an aggregation should build up. The moths have a long flight period: do they aestivate and only pair and become active in the autumn? In both our instances, it seems that the moths would have to leave their abode in a fairly definite sequence to avoid gross disturbance. Unless all the moths return nightly to the same roost, this suggests that voluntary activity is infrequent. — R. W. J. UFFEN, 6 Staddles, Dell Lane, Little Hallingbury, Nr. Bishops Stortford, Herts., CM22 7SW, 30.vi.75.

ANOTHER NEW FOREST M.V. RECORD. — The result of running my Robinson trap from dusk to dawn for the night of 1st-2nd June was — NIL. This is the first Nil return for a June night I have ever had. The maximum temperature on the 1st was 15°C., and for the night the minimum was 2°C. Records for previous years for the same date, giving the number of specimens (and the number of species), were: — 1963, 161 (47); 1964, 92 (41); 1965, 45 (21); 1966, 16 (8); 1967, 93 (35); 1968, 102 (38); 1969, 14 (9); 1970, 129 (43); 1971, 36 (24); 1972, 6 (5); 1973, 13 (9); 1974, 58 (23). — L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants.

Notes on British Butterflies, Summer and Autumn, 1974

By Dr. C. J. LUCKENS*

The windy changeable weather of late June merged into the first days of July. Remission finally came on the 3rd, and a stretch of heath on the eastern fringe of the New Forest held good numbers of male *Plebejus argus* L.

The rare Kentish f. *cretaceus* Tutt of this same butterfly was the main object of my search when I went with the family to the Folkestone Warren on 6th July. A good variety of other butterfly species were seen, including *Polygonia c-album* L., *Melanargia galathea* L., *Polyommatus icarus* Rott., *Aricia agestis* Schiff. and a single late *Lysandra bellargus* Rott. I failed once again to find *cretaceus* however, in spite of ideal weather and dogged searching. The Warren is a difficult place to cover entirely, and I haven't yet given up hopes of eventual success.

Later in the day my father and my elder son went on with me to Blean Woods, where we braved the hordes of *Formica rufa* in order to check on a colony of *Mellicta athalia* Rott. This proved to be much weaker than in 1973 (*Vide* 1974 *Ent. Record*, Vol. 86, p. 190) and the Cow wheat was almost submerged under bracken, but 300 yards further on there had been recent coppicing of chestnuts over a large area, and already a few *athalia* had moved in.

The following day was a red letter one for us all, when we were able to add *Nymphalis polychloros* L. to our British list (*Vide* *Ent. Record*, 87: 61).

The sun shone for the next two days after our return to Southampton, and I envied my parents who continued to see *polychloros* back at the same site in Sussex. It was something of a consolation though to go to a New Forest enclosure on 9th July and see several *Argynnis cydippe* L. in fast and vigorous flight over the bracken.

Thereafter dull and cold weather predominated, with occasional breaks, until well after the middle of July. *Limenitis camilla* L. and *Argynnis paphia* L. were both down in numbers in the Forest, and I personally saw no females of the latter species until the end of the month. *P. argus* however, was still fresh and in good numbers on Beaulieu Heath on 19th July.

I drove to Alice Holt in the late afternoon of 20th July—a superb day. On arrival at about 4.45 p.m., the first butterfly to greet me as I got out of the car was a male *Apatura iris* L., flying straight at me as if to imperiously brush me aside. A few moments later, another *iris* flew across to an oak seething with *Thecla quercus* L., and was immediately seen off by two of these comparative midgets. Further on, a large dark butterfly hovering over the path proved to be yet another Purple Emperor. This had settled when I reached the spot and was imbibing the little moisture remaining in a copralithic fragment on the ground. *Limenitis camilla* L. was also about in excellent numbers in this wood.

* 52 Thorold Road, Bitterne Park, Southampton, SO2 4JG.

A stretch of downland near Stockbridge, holds populations of six out of the eight British Skippers; but I could only find a single example of one of these species, *Thymelicus lineola* Ochs., on 26th July. *Argynnis aglaia* L. was common though very worn, and *Lysandra coridon* Poda. was also in its usual abundance in this locality.

August commenced well, with fine weather, and a successful visit to the West Sussex woods; and there I met Mr. A. Creber and Mr. K. A. Harrison on the 1st of the month.

The first sighting of note was a male *A. iris* flying high up around a large clearing. *L. camilla*, *A. paphia* and *T. quercus* were all out but well past their best; and the second brood of *Leptidea sinapis* L. was very strongly in evidence in one stretch of woodland. Female *sinapis* were seen ovipositing on young plants of Birds-foot Trefoil. All three of us were fortunate enough to find an *iris* ovum each during the course of the afternoon.

A week later I returned to another area of the same wood, and after a further search spotted a newly hatched *iris* larva. Yet another ovum found in Alice Holt on 9th August, completed my trio—unfortunately however, the larva from the first ovum died soon after hatching.

During our stay, in the first week of August, with my parents at their home in Sussex, we visited a small chalk quarry near Lewes. This is one of the only places I know where one can be reasonably certain of finding *Eumenis semele* L. in East Sussex. Several were seen but not so plentifully as in 1970 and 1973. *Celastrina agiolus* L. seemed to be making a minor comeback, and a few were noted along the dogwood hedges of the downland fringe, and also around my parents' garden which is always a good draw for this butterfly.

We returned to Southampton on the 8th and on St. Catherine's Down near Winchester, there were plenty of *L. coridon* flying. I examined a fair number of these blues, then, and on later occasions during the month, but found only one aberration, a *post-obseleta*, on 23rd August.

There was also a good showing of *coridon* at Worth Matravers in Dorset on 16th August, but ab. *fowleri*, that I covet, proved elusive. I walked to the *coridon* ground via the Winspit, and it was interesting to see *Thymelicus actaeon* Rott. appear as soon as the sea came into view. This sprightly little butterfly was common all along the coastline, and many were in surprisingly good condition. I saw several fresh *Pieris brassicae* L. come in over the cliffs from the Channel.

A few *C. argiolus* put in an appearance in and around Southampton during the last week in August—one along one of the busiest roads in the city, seemingly impervious to the exhaust fumes.

We revisited the Stockbridge down on 24th and 26th August, in order to assess the strength of *Hesperia comma* L., and found it as abundant as ever. In fact this generally rather scarce skipper is only surpassed in numbers there by *Maniola jurtina* L.

L. coridon is also very common but there is little or no variation from the type.

Gales in the first week of September seemed to have virtually no affect on *coridon* population, and both sexes were flying well past the middle of the month. *P. icarus* and *A. agestis* were also out at Westbury on 6th September, but to our disappointment there was no sign of *L. bellargus*.

This butterfly was also inexplicably absent from a site in East Sussex on 14th September. In mid-June I had failed to find its first brood here, and this was a widespread and strong colony as recently as 1970.

Right at the end of September some *M. jurtina* were fresh on St. Catherine's Hill, Winchester, and this locality was also favoured by many *Aglais urticae* L. attracted by scabious flowers. *Vanessa atalanta* L. was rather uncommon this year, but we had a few in our garden during the Autumn, and more *c-album* than usual. The Commas mostly favoured *Sedum spectabile* and Michaelmas Daisies, but several times during October I noticed that roses also seemed oddly attractive.

After the splendid season of 1973, this year was generally a disappointment in respect of population numbers of the butterflies. However, I found, much to my surprise, that in spite of less travel I had actually seen more variety than ever before in a single season—a total of 50 butterfly species being found in one stage or other during the year.

Current Literature

Stick and Leaf Insects by J. T. Clark. viii + 65 pp., 42 line drawings. Winchester: Barry Shurlock & Co., 1974. £1.50.

The culture of tropical stick-insects has spread during recent years, so that amateurs may maintain stocks of several different species—as well as the cultures in many colleges and schools. This book provides an accurate account of the stick-insect species obtainable in this country, with an introduction to insects for those with little previous knowledge. Stick-insect structure, behaviour and general biology, and the practical business of caging, are all covered, with explanatory line drawings and a useful glossary. The species available here are described in detail, with accurate accounts of egg structure, development of the nymphs, and the origin of the different species. For schools and colleges, some experiments are described, with useful suggestions for further study projects. References are given in each chapter for those stimulated to further reading, although the ability to read in French or German is often necessary for the more specialised works.

This excellent book can only foster and encourage the developing interest in stick and leaf insects.—JUDITH A. MARSHALL.

Notes on the Two Species of *Allancastria* Bryk (Lep.: Papilionidae) in Lebanon

By TORBEN B. LARSEN*

I have recently separated at the specific level two distinct species of *Allancastria* which fly sympatrically in the Lebanon range and probably elsewhere on the eastern Mediterranean (Larsen 1973). I have since decided that the correct names for the two entities are, as originally assumed, *A. cerisyi speciosa* Stichel and *A. deyrollei eisneri* Bernardi (Larsen 1974). The former is basically a low level insect, the latter flies at higher altitudes and on more arid ground. By now sufficient additional information has been accumulated to justify the publication of this note which further supports the original conclusions. How the specific status of the two entities escaped detection during more than 120 years of exploration in the Middle East remains something of a mystery.

New points of sympatry

Work and the civil disorders of 1973 hindered the full investigation of the chorology originally hoped for; however dozens of new localities were prospected and sufficient new points of sympatry were found to establish that there is a broad belt of co-existence between the two at altitudes between 900 to 1,200 metres on the western face of the Lebanon range. Dr. L. G. Higgins has caught a single male of *A. cerisyi speciosa* near Chtaura, 1,000m., Beeqa, 16/21-V-1962, among masses of *A. deyrollei eisneri*. It is possible that the specimen was a vagrant since I have never caught the former species in the Beeqa.

Ecology

The observations of the last two years show that the two species differ in their ecological preferences. *A. c. speciosa* is found in and around the lush river valleys and ravines, and in bushy habitats at middle heights. *A. d. eisneri* is much more at home on open, stony hill-sides. The points of sympatry are normally in intermediate types of terrain, often modified by the activity of man. This is in good accord with our present knowledge of the ecological preferences of the respective food plants. Although *A. c. speciosa* now appears very scarce in Palestine, the same pattern is evident (Nakamura, personal communication).

Early stages

The larvae of both species are similar in form and typical of the tribus *Zerynthini*; rather flat with rows of spiky warts covered with short bristles. Their colouration, however, differs considerably.

The fullgrown larva of *A. c. speciosa* is deep chocolate brown with orange warts on all segments. The bases of the two dorsal rows of warts are yellow, occasionally so prominent as

* C/o 18-20, Lower Regent Street, London, S.W.1.

to form continuous dorsal stripes. The fullgrown larva of *A. d. eisneri* is light greenish yellow, occasionally with darker dorsal markings. Only the warts of the first four or five segments are orange, the rest being of the ground colour. The differences between the larvae are much more immediately striking than those of the imagines.

I found *A. c. speciosa* feeding on *Aristolochia altissima* Desf., and it might also feed on some of the small *Aristolochia* of the coastal area. The larvae were unwilling to accept *A. maurorum* Linné or *A. paecilantha* Boissier, the normal food plants of *A. d. eisneri* in the mountains. It is, of course, possible that freshly emerged larvae would have accepted these plants.

The findings of this section have also been substantiated by Nakamura.

Breeding experiment

I had hoped to conduct a mass breeding experiment with *A. d. eisneri* during the spring of 1973, but curfew and restrictions on free movement curtailed the full implementation of the project. However, 78 larvae successfully pupated in my house, situated some 200m. above Beirut. There was no excessive mortality, nor signs of viral diseases. In early July thirty pupae were placed in tin boxes under substantial gravel pyramids near the house while a further ten were kept on the terrace. Thirty others were placed under similar conditions near Mdairej at an altitude of 1,500m. All were in batches of ten. Eight were retained for cytological study. With the exception of a clutch of ten from the coast, which had been removed from near the house, the pupae were successfully retrieved in March 1974, leaving thirty from each group ready to hatch. The following results were obtained during late March and early April, with the pupae kept near the coast hatching about a week earlier than the rest.

Table 1
Hatchings of *Allancastris deyrollei* hibernating on the coast and at 1,500m.

Group	Hatched		Unhatched	
	Perfect	Crippled	Diapause	Dead
Coast (n=30)	9	5	8	8
Mountains (n=30)	27	2	1	0

The series is not large enough for proper statistical treatment and significance testing, but it is strongly suggestive that *A. d. eisneri* is unable to hibernate successfully in coastal localities, and that this is a major factor in explaining the chorological pattern in Lebanon. The fact that eight pupae were

still diapausing without hatching indicates that frost may be a necessary prerequisite for hatching. However, in June the nine diapausing specimens were subjected to various degrees of cold shocking without subsequently hatching. In 1972 a series of 24 pupae hibernating on my terrace all failed to hatch.

It was, unfortunately, not possible to secure sufficient numbers of pupae of *A. c. speciosa* for the converse treatment.

Cytology

It was possible to study some clear karyotypes in cells of the male gonads about 20 days before the expected day of hatching. Spermatogenesis is very precocious in the species and many imagines had been studied in vain. *A. d. eisneri* has a haploid chromosome count of $n=30$ and a typical lepidopterous karyology. The modal number for the Papilionidae is $n=30$; *A. c. speciosa* has not yet been studied but it would be very surprising if it were to differ.

Allancastria outside of Lebanon

I have had the opportunity of making a few incidental observations on other populations of *Allancastria* in the Middle East. Mr. W. Schmidt Koehl kindly sent me some Cappadocian specimens which in morphology and genitalia of the male completely match the Lebanese *A. d. eisneri*. The females are rather lighter and the population may be intermediate between *eisneri* and nominate *deyrollei*. Dr. L. G. Higgins showed me a slide of the Bulgarian race of *A. cerisyi*, ssp. *ferdinandi* Stichel. The genitalia are very close to *A. c. speciosa*. Specimens of the morphologically rather distinct Cretan race of *A. cerisyi*, ssp. *cretica* Rebel, caught by Dr. Higgins in May 1974 also have genitalia close to *speciosa*. A drawing by Dr. Higgins of the genitalia of the curious ssp. *louristana* from S.W. Iran shows some peculiar traits and probably deserves further study.

Conclusion

Further studies on *Allancastria* in Lebanon have fully confirmed the initial findings of the author, and incidental observations from elsewhere seem to confirm also the broader interpretation of the data (Larsen 1973). Research on the dozen or so described forms of *Allancastria* is a must and could shed considerable light on the zoogeography of the region and the entire process of speciation in butterflies.

Postscript

The chromosome number of Beirut *A. cerisyi speciosa* has since been determined as $n=30$. The two entities are also sympatric in parts of South Turkey. There is an unmistakable male *A. deyrollei eisneri* among a long series of *speciosa* in coll. Colin Wyatt, labelled Asia Minor, Cilician Taurus, 900m., 29.v.1964, Dennelt leg.

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Current Literature

Insect Biochemistry and Function. Ed. **D. J. Candy and B. A. Kilby.** xii + 344 pp. £8.50. London, Chapman & Hall.

The natural history of insects is nowadays described increasingly in the analytic terms of genetics, physiology, chemistry and physics. Written from that point of view a book on insect biochemistry and function could be a fascinating book for the entomologist. Gowland Hopkins' classic work on the function of waste products in the ornament of insects, in which it was claimed that uric acid and other, coloured, derivatives of purine were the basis of pigmentation in Pieridae, blazed a trail into this territory. It is realised now that the greater part of these pierid pigments is based on the closely similar pterine ring, which had not been recognised in Hopkins' day. But the principle remains; indeed Pierids will utilise pteridines as end products of nitrogen excretion in lieu of purines. And the other great family of insect pigments, the ommochromes, which furnish many of the eye colours, and the reds and browns of Nymphalids and of other butterflies, are harmless waste products of excess tryptophane, an amino acid which is toxic when liberated in excess from protein breakdown. Likewise, the entomologist cannot fail to be interested in the energy supply of migrating insects. It is not surprising that they mostly lay up stores of fat, which is a far more economic means of storage than is sugar or glycogen. But it is surprising that most butterflies, unlike the honey bee, convert nectar into fat before using it even in small local flights.

But the reader must be warned that such considerations form only a by-product of *Insect Biochemistry and Function*. This book consists of four detailed technical reviews: two, by B. Sacktor and E. Bailey respectively, on the biochemistry of insect flight; one on excretion in insects by D. G. Cochran and a brief one on chemical transmitters in the insect nervous system. These are all good, well written reviews, but they cover only a small part of insect biochemistry and they are intended more for the biochemist who plans to study the cycles of metabolism and the properties of specific enzymes in the tissues of insects, rather than the entomologist who wants to know in simple terms how the body of the insect works. — SIR VINCENT WIGGLESWORTH.

Further Studies on the Occurrence and Distribution of the Genera *Cionus* and *Cleopus* (Coleoptera: Curculionidae)

By P. CUNNINGHAM, B.Sc., M.I.Biol.*

Introduction

The observations reported here were made in 1974. The reader is also referred to an earlier report by Cunningham (1974), of detailed observations in South Hampshire in 1973.

One British species, *Cionus scrophulariae*, hitherto not noted, has now been found in the area previously studied. Further, the range of species of weevils that infest *Scrophularia aquatica* is found to be broader than was earlier reported. Some pointers as to how the range of weevils can co-exist on the same food-plants have been determined, almost fortuitously.

The species referred to in this report are — *Cionus scrophulariae* L., *C. hortulanus* Geof., *C. alauda* Hbst., *C. tuberculosus* Scop. and *Cleopus pulchellus* Hbst.

Geographical Area Covered

These observations have been made in selected areas up to some 15 miles north and north-east of Portsmouth, together with three other stations; at Ringwood, Hants.; at Newport, Isle of Wight; and at Weymouth, Dorset.

Methods

In order to improve chances of increasing one's knowledge of the range of species found, it was decided to make regular and frequent visits (where possible) to plant-sites throughout the year. As a result, the times of year when the imagos first appear after overwintering have also been determined with some accuracy, besides broadening observation as to distribution of the weevils on *Scrophularia* spp.

Observations

These observations fall into two sections: A, the earliest dates in 1974 when the various species were noted; and B, a table of occurrence of the species on *S. aquatica* sites. Circumstances allowed highly accurate observations for dates of appearances on *S. nodosa*, though less reliance must be placed on the first appearances reported for *S. aquatica* as sites could not be visited almost daily, as for the first-mentioned species. Whilst the appearance of the members of any one species is synchronous and almost dramatic (so it seems), leaving the host-plant appears to be a gradual process. As yet, overwintering sites for these weevils remain a mystery; neither Grandi (1929) nor Read, R. W. J. (personal communication from Dr. M. G. Morris of Monks Wood Experimental Station) nor this writer have located the whereabouts of hibernating specimens. (Observations made in 1974 on the weevils' distribution on

* Department of Biology, City of Portsmouth College of Education.

S. nodosa confirm the writer's earlier report, but add nothing further in relation to species found.)

As will be seen, subjective indication of the abundance of the respective species has been given in Section B.

Discussion

The significant differences in times of emergence from overwintering suggests at least one means whereby these several species of weevil can co-exist on the same species of plants, in spite of apparent competition. Preliminary work by the writer indicates at least two further factors: differences in times of egg deposition, and also selection of highly specific egg-laying sites on the infested plants. It is hoped to report on these matters at a later date.

Occurrence of a range of *Cionus* and *Cleopus* species on both *Scrophularia nodosa* and *S. aquatica* is now established as under observations reported here and previously (Cunningham, 1974): viz. four species on *S. nodosa* and five on *S. aquatica*. What is further indicated is that *C. scrophulariae* is comparatively rare in S.E. Hampshire. This, in spite of assertions or implications in several popular books on insects and beetles that this species is relatively common (see Linssen, 1959; Daglish, 1960; Dibb, 1948). Relative frequencies of this range of weevil species in other parts of Great British would be of interest.

Acknowledgements

Mrs. J. F. Goodall is thanked for collecting from the Newport site. Dr. R. T. Thomson of the British Museum (Natural History) kindly confirmed identification of *Cionus scrophulariae*.

Table 1

A. Dates that adult weevils were first noted and active on plants.

	<i>S. nodosa</i>	<i>S. aquatica</i>
<i>Cionus scrophulariae</i>	No specimens found (41 sites examined)	31st May*
<i>C. hortulanus</i>	12th May	23rd May
<i>C. alauda</i>	12th May	25th May
<i>C. tuberculosus</i>	6th April	30th March
<i>Cleopus pulchellus</i>	30th March	Date not recorded (specimens supplied by acquaintance)

* First visit of year to site: specimens already active.

Table 2
B. Sites of *Scrophularia aquatica*

Site letter (as per writer's note-book)	No. of plants	Brief description of site and appropriate notes	Incident light (estimate) open exposed site=1.0	A=abundant; C=common; O=occasional; R=rare; —=absent				
				<i>Cionus scrophulariae</i>	<i>Cionus hortulanus</i>	<i>Cionus alauda</i>	<i>Cionus tuberosus</i>	<i>Cleopus pulchellus</i>
X	C.15	Roadside ditch—rural road (1973).	0.25	—	—	—	A	—
Y	est. 1000	Roadside ditch and its gently sloping banks—rural road.	0.7	—	A	O	C	—
Z	C.20	River bank of small river c.6 metres wide.	0.7	—	A	O	C	—
Z ₁	C.5	River bank about 25 metres W. of site Z.	0.3	—	O	O	C	—
Z ₂	2	Ditch about 35 metres S.W. of site Z.	0.25	—	—	C	—	—
AA	C.25	Bank of deep stream c.6 metres wide.	0.7	R	C	C	C	—
EE	C.10	Roadside verge, busy suburban road, 300 metres from large shopping centre.	0.3	—	O	O	C	—
GG	C.4	Flat heath, poorly colonised with vegetation, near to stream.	0.35	—	—	—	—	—
GG ₂	C.20	Steep bank of stream.	0.15	—	—	—	—	—
HH	2	West-facing bank at side of cart-track.	0.25	—	—	—	—	—
LL	est. 100	Bank of small river c.5 metres wide about 1 km. upstream from site Z.	0.7	—	C	C	C	—
PP	est. 50	E. and W. banks of small river, c.3 metres wide, 25 cm. deep.	0.35	R	C	C	O	—
QQ	est. 200	N. and S. banks of river about 1 km. upstream from site PP, c.2 metres wide 20 cm. deep.	0.35	—	C	A	C	—
SS	est. 6	Edge of brook. Plants roots partially sub-submerged.	0.4	—	O	—	—	O
TT	est. 100	Newport, I.o.W. In ditch, and on side of its banks. Weymouth, Dorset.	0.4	C	—	C	C	—

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[The abnormal rarity of *C. scrophulariae* in the author's district may well be correlated with the unusually high frequency of its nearest ally, *C. tuberculosus*, which to a very large extent appears to replace it there ecologically. Possibly where these two species occupy the same area they are in direct competition, the former usually prevailing, the latter only exceptionally; cf. however, the final entry under section B, and see further my Notes on British Cionini in *Ent. Rec.*, **86**: 265-269. — A. A. Allen.]

Notes and Observations

MELIANA FLAMMEA CURTIS IN THE ISLE OF WIGHT. — I would like to record the capture of two specimens of the Flame Wainscot in the Island. The first specimen, a worn male, came to m.v. light in my garden on 7th June, 1971. The second specimen, a fresh female, came to m.v. light here on 10th June, 1975. It seems likely the moth is breeding in the neighbourhood. — T. D. FEARNEHOUGH, 26 Green Lane, Shanklin, Isle of Wight.

EARLY ORANGE-TIPS IN 1974. — In his most interesting article "Notes on British Butterflies: Spring and Early Summer 1974" (*Ent. Rec.*, **87**: 20-21), Dr. C. J. Luckens mentions a very early male Orange-tip (*Anthocharis cardamines* L.) in Sussex on 20th April. It may be of interest to record that I saw four males of this species in the same county on 14th April. They were flying over a marshy hollow containing a generous growth of Lady's Smock (*Cardamine pratensis*) on the edge of Warren Wood, near Battle.

I had thought that this was exceptionally early but was subsequently reliably informed that one was recorded at the same locality on 6th April. — G. SUMMERS, 23 West Close, Stafford, Staffs., ST16 3TG.

Collecting Without a Light Trap in 1974

By M. BRITTON*

I am essentially a lazy person and although I have used an m.v. trap to find out what moths occurred within my local district, this had the undesirable effect of curtailing much of my field work and gaining a sense of false "plentifulness" with respect to very many species. As many of the trapped moths were somewhat rubbed (by friction among the egg trays?) the value of these as cabinet specimens was doubtful.

The purist in me rebelled and I stopped using the trap and refound the pleasure of beating larvae, sallowing, searching, surgaring, etc. However, I found that certain species rarely visiting m.v. traps are fairly easily found in the field, which is some consolation for my approach.

On 27th January, together with Paul Stirling, a search was made for galls of the Sallow Clearwing (*Aegeria flaviventris* Staudinger) on the south part of Chobham Common, but only about six were found and of these we were not altogether certain. A further trip on 17th February to a less open area with isolated small bushes sometimes forming clumps was more successful. The brightness of the day gave the bushes clear silhouettes and about 20 galls were easily spotted, of which six looked likely. These were cut 4in. above and below the galls and stood upright in damp sand, and occasionally the sand was sprinkled with water.

On 30th March, the mildness suggested a trip to the downs at Princes Risborough, where an abundance of wild privet (*Ligustrum vulgare*) made the Barred Tooth-striped (*Trichopteryx polycommata* Denis and Schiff.) a possibility. Plenty of geometers were flying and Shoulder Stripe (*Earophila badiata* Denis and Schiff.) was plentiful and the Mottled grey (*Colostygia multistrigaria* Haw.) rather less so, but no *polycommata*. The next evening, together with Paul Stirling, some sallows at Alice Holt Forest were shaken on to the sheet resulting in two White-marked (*Gypsites leucographa* Denis and Schiff.)

An Easter trip to Speyside started with the usual search of the Struan posts for Rannoch Brindled Beauty (*Poecilopsis lapponaria* Boisd.) in very mild weather, but without reward, though in the evening several Powdered Quaker (*Orthosia gracilis* Denis and Schiff.) of the pink form, sat on tips of bog myrtle (*Myrica gale*) and two Red Sword-grass (*Xylena vetusta* Hübner) came to sugar. The next day a further search of the posts produced four Ringed Carpet (*Cleora cinctaria* Denis and Schiff.) subsp. *bowes* Richardson (one by night) and two Early Tooth-striped (*Trichopteryx carpinata* Borkh.) ab. *fasciata* nearby. The warm weather continued that day, 16th April, and sugar produced two more *vetusta*, and much to my surprise, a Sword-grass (*Xylena exsoleta* Linn.) and some nice Clouded Drab (*Orthosia incerta*) which were reddish and mottled; Tilley lamp attracted two Red Chestnut (*Cerastis rubricosa* Denis and

* 27 Patricia Close, Slough, Bucks., SL1 5HT.

Schiff.), an early Light Knotgrass (*Apatele menyanthidis* Esp.) and many Early Tooth-striped (*Trichopteryx carpinata* Borkh.). Moving on towards Aviemore, a stop at some likely posts by the main road near Etteridge produced about 15 *P. lapponaria* females sun-bathing near the tops of the posts; no males were found though an Emperor (*Saturnia pavonia* Linn.) male fluttered feebly by the roadside, suffering from passing transport but nevertheless in fine condition. This and the next day were hot and sunny (about 75°F.) so the trip to the moors near Aviemore not surprisingly showed plenty of Oak Eggar (*Lasiocampa quercus* Linn.) larvae sunning themselves on fence posts, and also several Dark Tussock (*Dasychira fascelina* Linn.) larvae. Subsequently *L. quercus* larvae proved themselves plentiful on several high land districts in England, Wales and Scotland. On posts by an isolated group of willows, several old cocoons of the Willow Kitten (*Harpyia furcula* Clerck) and one Puss (*Cerura vinula* Linn.) were noted, and also a fine Kentish Glory (*Endromis versicolora* Linn.). Later in the afternoon four male *versicolor* were seen flying fast over open areas by a birch wood, of which one was caught; assembling was attempted, but failed. On reloading the car for the return journey, falling pine cones attracted my attention, and suspecting Crossbills (*Loxia curvirostra*) I spotted an unperturbed red squirrel nibbling at the seeds.

A week later a few lovely Birch Mocha (*Cosymbia albipunctata* Hufn.) emerged from larvae beaten in the autumn (some larvae were green and some brown) at Chobham Common. On 6th May, careful searching of spinings on new black poplar leaves produced two yellowish grey, black headed noctua larvae with very fine black speckling. I was trying to solve the mystery of a few years ago when an Olive (*Zenobia subtusa* Denis and Schiff.) appeared in my breeding cage, though I had no larvae answering its description. The mystery was solved when two weeks later on changing skin, the larva lost its black head and bore some resemblance to a Minor Shoulder-knot (*Bombycia viminalis* Fabr.) which in fact I had taken from a rolled-up poplar leaf the year in question. On 11th May, a walk up Hawk Combe, near Porlock, suddenly disturbed three geometers from amongst bilberry and birch, which proved to be the Square spot (*Ectropis consonaria* Hübner) and almost in the same breath we looked down the slope to a Common Buzzard (*Buteo buteo*) lazily flapping away from two visible fluffy white chicks on its great nest of sticks.

On the 16th May I set out for Borth Bog with notes as to how to locate the area preferred by the Rosy Marsh (*Coenophila subrosea* (Steph.)). The weather was thundery and ideal for larvae, and after tipping the farmer I put up the tent, lit the Tilly lamp and set to work searching the bog myrtle. Much of the cover had been burnt by a large fire, and although two Least Yellow Underwing (*Euscheus interjecta* Hübn.) larvae were spotted, it took two hours to find the first characteristically longitudinally striped larva. Another hour produced another

seven larvae, an *X. vetusta*, *O. gracilis* and a Metcalfe's Carpet (*Lampropteryx otregiata* Metcalfe).

On 20th May, a visit to Dungeness to sugar the railway posts by the old station produced large quantities of moths at Tilley lamp on a sheet and at sugar: about 30 Light Feathered Rustic (*Agrotis denticulatus* Haw.), of which one was nearly black, 70 Light Brocade (*Hadena w-latinum* Hufn.), of which some were at sea campion blossom, Bird's Wing (*Dypterygia scabriuscula* Linn.), White Spot (*Hadena albimacula* Borkh.), two Shears (*Hada nana* Hufn.), about 30 Tawny Shears (*Hadena lepida* Esp.) and 30 Toadflax Brocade (*Calophasia lunula* Hufn.). A visit to Woodwalton Fen and a further visit to Dungeness on 22nd and 26th produced several Southern Wainscot (*Leucania straminea* Treits.) larvae feeding openly on reeds at Dungeness. Grass Eggars (*Lasiocampa trifolii* Denis and Schiff.) larvae were not uncommon on grass, broom, bramble, etc., while those of *B. viminalis* Fabr. dropped on to one by the willow clumps.

On 29th May, a visit to Dovedale produced many Brick-like larvae from wych elms (*Ulmus glabra*) and four Clouded Magpie (*Abraxas sylvata* Scop.) moths were spotted on dog's mercury leaves in Dovedale itself. Sweeping ling next day at Beeley Moor, Chesterfield, produced plenty of Small Autumnal (*Oporina filigrammaria* H.-S.) larvae and two Scarce Silver Y (*Plusia interrogationis* Linn.); a male Emperor (*Saturnia pavonia* Linn.) was caught in undignified fashion by the sweeping net. Some sugar on posts at Blubberhouses Moor, near Ilkley, produced little but two Dark Brocade (*Eumichtis adusta* Esp.) which I have never found to be "more or less common", these being my first specimens.

On return home, a lovely Varied Coronet (*Hadena compta* Denis and Schiff.) had emerged on 2nd June from sweet williams from Mr. Chipperfield's Walberswick garden. A Silvery Arches (*Polia hepatica* Clerck) had emerged from a larva taken under my groundsheet at Struan.

On 9th June, a walk on the downs near Princes Risborough produced a fine female Wood Tiger (*Parasemia plantaginis* Linn.) which I had only met previously on Yes Tor, Dartmoor. A Scottish *D. fascelina* emerged, but was unfortunately a male (I had bred three males from Dungeness, but no female). On 14th and 15th June, much to my delight a pair of *A. flaviventris* emerged (only the second species of clearwing I have so far). Toadflax Pugs (*Eupithecia linariata* Denis and Schiff.) from Dungeness larvae and Purple Thorns (*Selenia tetralunaria* Hufn.) from New Forest larvae were also emerging. A visit to an uncle at Bexhill, via Abbots Wood, produced an Orange (*Angerona prunaria* Linn.) flying in the fading light of a hot 21st June, which was orange and brown and which I had only previously met at Bickleigh Vale, Plymouth, while the reeds by the main road at Pevensey levels held surprises in Silky Wainscot (*Chilodes maritima* Graslin) including ab. *bipunctata* and Dotted Fanfoot (*Zanclognatha cribrumalis* Hufn.), both quite common at Tilley lamp. Next day, walking at Windover Hill, colonies

of Bee orchid (*Ophrys apifera*), led to spotting two Burnt-tip orchids (*Ophrys ustulata*), and later on walking through yellow rattle (*Rhinanthus crista-galli*) a few Grass Rivulet (*Perizoma albulata* Denis and Schiff.) were put up, blown away, and chased, there being several similar sized micros adding to the confusion.

On 23rd June *Z. subtusa* emerged from the Slough larvae, thus clearing up the mystery, and an *E. interjecta* from Borth Bog. A visit to Mr. Dobson in the New Forest led to our scouring a boggy area where a little yellow loosestrife (*Lsimachia nemorum*) grew and obtaining a feebly fluttering Dentated Pug (*Anticollix sparsata* Treits.) flying inside a thorn thicket, and a few Rosy Wave (*Scopula emutaria* Hübn.) on open wet heathland nearby. Also on the heath were Beautiful Brocade (*Hadena contingua* Denis and Schiff.) in copula, Striped Wainscot (*Leucania pudorina* Denis and Schiff.), Mottled Beauty (*Alcis repandata* Linn.) ab. *conversaria*, several male Clouded Buff (*Diacrisia sannio* Linn.), *X vetusta* larva and Beautiful Yellow Underwing (*Anarta myrtilli* Linn.) larvae on ling. On 6th July at Studland Heath, Dorset, *S. emutaria* appeared amongst bog myrtle and a female Miller (*Apatele leporina* Linn.) netted while laying on birch. At Tilley lamp were a Peacock (*Semiothisa notata* Linn.), Small Seraphim (*Mysticoptera sexalata* Retz.), and two *A. repandata* ab. *conversaria*. A few Shore Wainscot (*Leucania litoralis* Curtis) were flying amongst the nearby dunes.

On 17th July, near Bracknell, it was pleasing to see a White Admiral (*Limenitis camilla* Linn.) gliding about a clearing in a small wood. On 27th July, an old pale fence camouflaged a mint female Brussels Lace (*Cleorodes lichenaria* Hufn.) at Abbotsbury, Dorset. The coastal marsh yielded several Fen Wainscot (*Arenostola phragmitidis* Hübn.) and Crescent (*Celaena leucostigma* Hübn.).

At the B.E.S. meeting at Walberswick marshes, Fenn's Wainscot (*Arenostola brevilinea* Fenn) was plentiful amongst reeds and coarse grass and a few *C. maritima*, *A. phragmitidis*, Southern Wainscot (*Leucania straminia* Treits.), White Mantled Wainscot (*Nonagria neurica* Hübn.), Brown-veined Wainscot (*Nonagria dissoluta* Treits.) and Crescent Striped (*Apamea oblonga* Haw.) were flying to Tilley lamps. At Southwold the marram grass was being flattened by the wind but Coast Dart (*Euxoa cursoria* Hufn.), White-line Dart (*Euxoa tritici* Linn.) braved the conditions, and while a few Lyme Grass Wainscots (*Arenostola elymi* Treits.) sat on or flew amongst lymegrass.

On 13th August, a trip to the Hebrides saw some sugaring on a boggy heath on South Uist which produced the black form of the Dark Arches (*Apamea monoglypha* Hufn.), *C. leucostigma* and Anomalous (*Stilbia anomala* Haw.), while the Tilley light lit up two Red Carpet (*Xanthorrhoe munitata* Hübn.) among yellow flag (*Iris pseudacorus*), a Manchester Treble-bar (*Carsia sororiata* Hübn.) and Deep Brown Dart (*Aporophyla lutulenta* Denis and Schiff.) ssp. *lunebergensis*. A brief stop at Struan on the way home showed a thriving colony of Scotch Argus (*Erebia*

aethiops Esp.), two very chip-like Golden-rod Brindle (*Lithomoia solidaginis* Hübn.) and a *P. interrogationis* on posts.

On 21st August, a mild misty night on the Kennet, amongst an abundance of hemp agrimony (*Eupatorium cannabinum*) flowers I found the yellow form of the Dingy Footman (*Lithosia griseola* Hübn.) to be as common as the normal form, but only one deformed *N. dissoluta* was found. The 23rd saw a late holiday trip to Woodwalton Fen, where the yellow form of *L. griseola* again showed up with ochreous and brown forms of the Mere Wainscot (*Arenostola fluxa* Hübn.), a fine *S. pavonia* larva on meadowsweet (*Filependula ulmaria*) and the beautiful Marsh Carpet (*Perizoma sagittata* Fab.) larvae on meadow rue (*Thalictrum flavum*). The dunes at Southwold had several carpets of rest-harrow (*Ononis repens*) attended by many green and pink noctuid larvae, most of which were parasitised, but some of which produced Bordered Sallow (*Pyrrhia umbra* Hufn.).

On 28th August at Chobham, beating an area of broom (*Sarothamnus scoparius*) showed Broom-tip (*Chesius rufata* Fab.) larvae to be locally quite common. The *A. circellaris* from Dovedale were emerging accompanied by one Dusky Lemon Sallow (*Cirrhia gilvago* Denis and Schiff.) whose larva is very similar. On the 14th September, Paul Stirling accompanied me to the Essex Marshes for the locally plentiful Fisher's Estuarine Moth (*Gortyna borelii* Pierret) pupae. The rare food-plant, hogs fennel (*Pucedanum officinale*) occurred in large clumps and readily betrayed occupation of larvae by coarse yellow-brown frass around the base of the stems. The rhizome root stocks were tough and the size of a bread-board, so that locating pupae was not so straightforward, nevertheless, we each found about half a dozen and one full-fed larva. Next day, the moth emerged in my cage and another later, whilst the remaining pupae contained large parasitic larvae.

On 21st September, winter had truly set in, but a few of us braved gales and north-east wind to meet at Peter Baker's Swanage sortie. No ivy seemed out yet but a few Beautiful Gothic (*Leucochlaena oditis* Hübn.) clung tenaciously to grass stems amongst steep short turf. A brief mild spell punctuated the rain and gales on the 8th November when I broke my light trap abstinence with a small Heath trap near Marlow in a wood where I had taken two Maple Prominent (*Lophopteryx cucullina* Denis and Schiff.) larvae from the same tree; Plumed Prominent (*Ptilophora plumigera* Denis and Schiff.) male obliged within a few minutes, so I retired to a near-by pub and returned to find to my delight a female *plumigera* awaiting my return; she obliged with about 40 ova. A Grey Spruce Carpet (*Thera variata* Denis and Schiff.) turned up on this rather late date. Finally, a walking trip to Snowdonia found us near Beddgelert on a mild drizzly evening with December Moths (*Poecilocampa populi* Linn.) buzzing round several electric lights, a *X. vetusta* on the door of the youth hostel and the white and black form of the Mottled Umber (*Erannis defoliaria* Clerck) nearby.

All in all, one of my more successful years, though involving much travelling and fewer failures than I usually seemed to have. But oh, those clearwings, will I ever find them?

Lepidoptera of Aberdeenshire and Kincardineshire

By R. M. PALMER

(Continued from page 188)

C. truncata Hufn.A. & K. Common, Larvae on *Rubus* (E.C.P.-C.).**Cidaria fulvata** Forst.

A. & K. Widespread, common in places.

Plemyria rubiginata D. & S.

Rather local (Trail, 1878).

A. Frequent, Culter and Echt (Cowie, 1902). Tillyfour oak wood, one, 1968 (R.M.P.).

Thera firmata Hübn.

Local and scarce (Trail, 1878).

A. & K. Not uncommon in pine woods.

T. obeliscata Hübn.

A. & K. Common.

T. cognata Thunb.

A. Inverurie, one; Braemar (Trail, 1878). Braemar, Morrone Hill N.N.R. (R.M.P., E.C.P.-C.). Ballater, one, 1971, Cambus o'May, 1973 (E.C.P.-C.). Crathie (E.C.P.-C., R.M.P.). Larvae on Juniper (E.C.P.-C., R.M.P.).

T. juniperata L.

Locally common among Juniper (Reid, 1893).

A. Glentanar, 1971, and Crathie, larvae on Juniper (E.C.P.-C.).

K. Banchory (Cowie, 1902). Banchory R.T.

Electrophaes corylata Thunb.

Local, rather scarce (Trail, 1878).

A. Occasional, Cluny (Cowie, 1902); Braemar (James, 1912). Dyce, Newmachar, Corby Loch, Dinnet (R.M.P.); Braemar, Morrone Hill N.N.R. (E.C.P.-C., R.M.P.).

K. Occasional, Banchory (Cowie, 1902). Durriss Forest (E.P.); Banchory R.T., one.

Colostygia olivata D. & S.

A. Local, Echt, Braemar, Kinellar, Inverurie (Trail, 1878); Whitestripes (Cowie, 1902). Tillyfour oak wood (R.M.P.); Crathie, one, 1970, one, 1971, Dinnet oak wood N.N.R., one, 1971 (E.C.P.-C.).

K. Local, Muchalls (Trail, 1878); abundant (Horne, 1904). Muchalls (R.M.P.); Banchory R.T.

C. multistrigaria Haw.

A. & K. Abundant on moors.

C. pectinataria Knoch.

A. & K. Common.

Hydriomena furcata Thunb.A. & K. Abundant. Larvae on *Vaccinium myrtillus* (E.C.P.-C., R.M.P.).**Epirrita dilutata** D. & S.

Common (Trail, 1878).

A. Rubislaw, Hazelhead, Mannofield, Murtle Den (Cowie, 1902). Kintore, Dyce, Bucksburn (R.M.P.).

K. Durriss Forest (E.P.); Banchory R.T.

E. autumnata Borkh.

A. Rare, Braemar (Reid, 1893); common Rubislaw, Hazelhead, Murtle Den, Park, Cults (Cowie, 1902). Kintore, Bucksburn, Forvie N.N.R. (R.M.P.).

K. Rare, Banchory (Reid, 1893). Banchory R.T., abundant.

E. filigrammaria H.-S.

A. Rare, Echt, Braemar, Inverurie (Trail, 1878). Dinnet Muir, larvae swept 1971 (E.C.P.-C.).

K. Banchory (Cowie, 1902).

Operophtera brumata L.

A. & K. Common. Larvae on Hawthorn, Sallow, Rose, Birch (R.M.P.); Apple (M.S.).

O. fagata Scharf.

A. Hazelhead, Haddo House (Cowie, 1902). Generally less common than *O. brumata* but locally in great abundance. Frequently causes severe defoliation of birch on Dinnet Muir (G.M., E.C.P.-C., R.M.P., E.P.). (Defoliation also in part caused by *Agriopis aurantiaria* Hübn.). Imagines also at Corby Loch, Oldmeldrum (R.M.P.); Balgownie (A.D.).

K. Banchory R.T., common.

Perizoma alchemillata L.

A. & K. Common.

P. minorata ericetata Steph.

A. Common, Braemar, Scotston Moor, Inverurie (Trail, 1878); Monymusk (Reid, 1893); Aberarder (James, 1912); Braemar, 1962 (E.C.P.-C.); Glen Slugain, 1968, 1969 (R.M.P.); Dinnet Muir, 1971 (E.C.P.-C.).

K. Muchalls (Reid, 1893); scarce (Horne, 1904). Cove, 1946 (D. Sangster).

P. albulata D. & S.

A. Local, abundant on Aberdeen Links (Trail, 1878); Scotston Moor, Nigg (Cowie, 1902); Aberarder (James, 1912). Common on coastal sandhills (R.M.P.); Dinnet, one, 1972 (R.M.P.); one, 1973 (E.C.P.-C.); Ballater, one, 1973 (E.C.P.-C.); Braemar, 1973 (N.G.).

K. Abundant at Muchalls (Trail, 1878); Stonehaven (Dalglish, 1894); common at Muchalls (R.M.P.); Banchory R.T., one.

P. flavofasciata Thunb.

K. Abundant at Muchalls (Cowie, 1902). St. Cyrus N.N.R., one, 1961 (E.C.P.-C.).

P. didymata L.

A. & K. Abundant.

Eupithecia tenuiata Hübn.

Larvae abundant in sallow catkins (Reid, 1893).

A. Scarce, Old Aberdeen (Trail, 1878); common, Rubislaw, Hazelhead, Blackburn, Cluny, Kintore (Cowie, 1902). Kintore, one bred from sallow catkins, 1973 (R.M.P.). Fintray, one, 1974 (M.R.Y.).

E. pulchellata Steph.

A. Local, common at Dyce, Inverurie (Trail, 1878); Aber-

- deen, Pitcaple (Reid, 1893); Scotston Moor (Cowie, 1902); Dyce, common (R.M.P.); Dinnet oak wood N.N.R., one, 1970, Dinnet Muir, one, Cambus o'May, 1973 (E.C.P.-C.); Turriff, 1974 (D.G.).
- K. Local, common at Muchalls, Banchory (Trail, 1878). Durris Forest (E.P.); Muchalls (R.M.P.); Banchory R.T., one, 1974.
- E. exigua** Hübn.
A. Occasional, near Aberdeen (Cowie, 1902). Kintore, one, 1968 (R.M.P.).
K. Banchory R.T., one.
- E. pygmaea** Hübn.
Widespread but not common (Reid, 1893).
A. Common at Dorncleugh (Cowie, 1902).
K. Cove, 1969 (E.P.).
- E. centaurea** D. & S.
A. Rare, near Aberdeen (Cowie, 1902). Rattray Head, one, 1954 (E.C.P.-C.).
- E. trisignaria** H.-S.
A. Dinnet oak wood N.N.R., two ♀♀, 1970 (E.C.P.-C.).
- E. intricata** Zett.
A. Braemar (Trail, 1878). Morrone Hill N.N.R., common; Crathie, 1969 (E.C.P.-C.).
- E. satyrata** Hübn.
A. & K. Common on moors. Larvae on *Pedicularis palustris* (E.C.P.-C.).
- E. absinthia** Clerck.
A. & K. Not uncommon.
- E. goossensia** Mabilie
A. Scarce, Inverurie, Pitcaple (Reid, 1893). Cambus o'May, one, 1973 (E.C.P.-C.).
- E. assimilata** Dbdy.
A. Pitcaple (Reid, 1893); Aberdeen (Cowie, 1902). Dyce, Pitcaple (R.M.P.); Ballater, one, 1971 (E.C.P.-C.). Kil-drummy, 1974, one (D. Sangster).
K. Stonehaven (Dalglish, 1894). Banchory R.T.
- E. vulgata** Haw.
A. & K. Common.
- E. subfuscata** Haw.
A. Rare, Aberdeen, Inverurie (Trail, 1878); scarce, Braemar, Pitcaple (Reid, 1893).
A. & K. Widespread, not uncommon (R.M.P.).
- E. icterata** Vill.
A. & K. Common.
- E. distinctaria** H.-S.
A. Not scarce at Braemar (Cowie, 1902). Crathie, one, 1970 (E.C.P.-C.).
- E. indigata** Hübn.
Local, common in fir woods (Reid, 1893).
A. Local, Braemar, Inverurie (Trail, 1878); Hill of Nigg, Hazelhead, Dorncleugh (Cowie, 1902). Drum Castle woods, one, 1974 (M.R.Y.).

E. nanata angusta Prout.

A. & K. Not uncommon on moors.

E. virgaureata Dbdy.

A. Fintray, 1970 (R.M.P.).

K. Banchory R.T.

E. abbreviata Steph.

A. Tyrebagger Hill, one (Palmer, 1972).

K. Durris Forest, one, 1973 (E.P.). Banchory R.T., one, 1974.

E. pusillata D. & S.

Abundant among juniper (Reid, 1893).

A. Abundant at Braemar, also at Inverurie (Trail, 1878). Common among juniper between Dinnet and Braemar, larvae on juniper (E.C.P.-C., R.M.P.); near Monymusk, 1973 (R.M.P., D.B.).

K. Banchory R.T., common.

E. lariciata Freyer

Rare (Trail, 1878); locally common (Reid, 1893).

A. Hazelhead, Countesswells (Cowie, 1902). Braemar, two, 1969, one, 1970 (E.C.P.-C.).

K. St. Cyrus (Gunning, 1896); common (Horne, 1904).

E. tantillaria Boisd.

A. Huntly, abundant among spruce, Cults, one (Palmer, 1972). Braemar, one, 1969 (E.C.P.-C.).

Chloroclystis rectangulata L.

A. Inverurie, one (Trail, 1878). Aberdeen, one, 1967 (E.P.); Braemar, one, 1970 (E.C.P.-C.); Dyce, one, 1972 (R.M.P.); Cambus o'May, one, 1973 (E.C.P.-C.).

K. Bridge of Dee, one (Horne, 1904). Banchory R.T., 1974.

Gymnoscelis rufifasciata Haw.

A. & K. Not uncommon on moors.

Chesias legatella D. & S.

A. & K. Abundant, larvae on broom.

C. rufata Fab.

Widely distributed but scarce (Reid, 1893).

A. Local, common on Old Aberdeen Links (Trail, 1878); Bucksburn, Blackburn, Kintore, Cluny (Cowie, 1902). Kintore (E.P., R.M.P.); Tyrebagger Hill, one, 1969, Pitcaple, 1971 (R.M.P.).

K. Banchory R.T., Common.

Carsia sororiata anglica Prout.

A. Local, rather common at Braemar (Trail, 1878). Braemar, 1952; Glen Derry (Cairngorm N.N.R.), one, 1971 (E.C.P.-C.).

Aplocera plagiata L.

A. & K. Locally common.

Odezia atrata L.

A. Local, abundant at Braemar, Inverurie, Peterhead (Trail, 1878); Aberarder (James, 1912). Ballater, 1965 (G.M.); Kintore, common (E.P., R.M.P.); Crathie, one, 1970, Cambus o'May, one, 1970 (E.C.P.-C.); Inver, 1974 (R.M.P., M.R.Y.); Kildrummy (D. Sangster).

- K. Muchalls (Trail, 1878); Portlethen (Cowie, 1902).
Muchalls, common (E.P.).

Venusia cambrica Curt.

- A. & K. Quite common.

Lobophora halterata Hufn.

- A. Fyvie, one (Trail, 1878); Braemar (Cruttwell, 1907).
Morrone Hill N.N.R., one, 1964 (E.C.P.-C.).

Trichopteryx carpinata Borkh.

- A. & K. Not uncommon.

Abraxas grossulariata L.

- A. Abundant in gardens, Aberdeen, Oldmeldrum (Trail, 1878); [Pitcaple, common, introduced (Reid, 1893)].
Local, common in Aberdeen, larvae on *Ribes* (E.P.);
Newmachar and Fraserburgh (R.M.P.). Near Braemar,
one, 1974 (M.R.Y.).

Semiothisa liturata Clerck.

- A. & K. Not uncommon in pine woods.

S. carbonaria Clerck.

- A. Morrone Hill (Trail, 1878); not uncommon, hills near
Braemar (Reid, 1893). Morrone Hill N.N.R., 1960
(E.C.P.-C.); Ben Avon 1970 (R.M.P.).

S. brunneata Thunb.

- A. Locally common, Castleton (Trail, 1878); Braemar,
Derncleugh (Reid, 1893); Cluny (Cowie, 1902). Braemar,
one, 1952, one, 1955 (E.C.P.-C.); Forest of Birse, 1970,
Fintray, one, 1973 (R.M.P.). Inver, 1974 (R.M.P.);
Glentanar (E.P., E.C.P.-C.); near Colpy, abundant
(E.P., R.M.P.).
K. Very local (Horne, 1904). Banchory, one, 1954
(E.C.P.-C.).

S. wauaria L.

- Common in lowland gardens (Trail, 1878); locally abundant
(Reid, 1893).

- A. Old Aberdeen, 1971 (D.B.); Braemar, one, 1970,
Ballater, one, 1971 (E.C.P.-C.).

Petrophora chlorosata Scop.

- A. Fintray, Cults, Monymusk (Palmer, 1972); Dyce, one,
1972 (R.M.P.).
K. Durrus Forest (Palmer, 1972); Banchory R.T.; Muchalls,
1974 (M.R.Y.).

Plagodis pulveraria L.

- A. Tillyfour oak wood, one, 1970 (R.M.P.).
K. Banchory R.T., two.

Opisthograptis luteolata L.

- A. & K. Common.

Epione repandaria Hufn.

- A. Scarce, Monymusk, Fyvie (Trail, 1878). Kintore, one,
1968 (E.P.); Corby Loch, 1968 (R.M.P.).
K. Banchory R.T., one, 1974.

Pseudopanthera macularia L.

- A. Forest of Birse, one, 1971 (E.P.). Turriff, 1972 (D.G.).

Ennomos alnaria L.

- A. Harlaw, 1968 (E.P.).

K. Durris Forest, 1968, Strachan, one, 1969 (E.P.);
Banchory R.T., one, 1974.

Selenia dentaria Fab.

A. & K. Common, univoltine (R.M.P.) Larvae on *Calluna*
(E.C.P.-C.).

S. lunularia Hübner.

Local (Trail, 1878).

A. Pitcaple (Reid, 1893); scarce, Rubislaw, Blackburn,
Cluny (Cowie, 1902). Dinnet, one, 1969 (E.P.).

K. Banchory R.T., two.

Odontoptera bidentata Clerck.

A. & K. Quite common. Larvae on birch, hawthorn
(R.M.P.).

Crocallis elingaria L.

A. & K. Common. Larvae on apple, hawthorn (R.M.P.).

Colotois pennaria L.

A. Old Aberdeen (Trail, 1878).

K. Banchory R.T.

Apocheima pilosaria D. & S.

A. & K. Quite common (R.M.P.). Larvae on *Alnus*
(E.C.P.-C.), birch (R.M.P.).

Lycia hirtaria Clerck.

A. Dinnet, 1969, one larva on birch (R.M.P.).

K. Banchory R.T., 1973, 1974.

Biston betularia L.

A. & K. Quite common, larvae on birch (R.M.P.); rose
and Cotoneaster (M.S.).

Agriopsis aurantiaria Hübner.

A. Scarce, Echt, Inverurie, Fyvie (Trail, 1878); occasional,
Hazelhead, Murtle Den, Countesswells (Cowie, 1902).
Tyrebagger Hill, Dinnet, Kintore (Palmer, 1972). Larvae
on *Betula* and in conjunction with larvae of *O. fagata*
Scharf. causing severe defoliation on Dinnet Muir
(G.M., E.C.P.-C., R.M.P., E.P.).

K. Banchory R.T., common.

A. marginaria Fab.

A. Scarce, Echt, Inverurie, Fyvie (Trail, 1878); Hazelhead
(Cowie, 1902). Kintore, 1968, Monymusk, 1969
(R.M.P.).

K. Durris Forest, 1968 (E.P.); Banchory R.T., 1974.

Erannis defoliaria Clerck.

Very rare (Trail, 1878).

A. Pitcaple, rare elsewhere (Reid, 1893); Pitfour (Cowie,
1902). Balgownie (A.D.).

K. Banchory (Barr, 1904). Durris Forest (Palmer, 1972).
Banchory R.T.

Peribatodes rhomboidaria D. & S.

A. & K. Common.

Selidosema brunnearea Vill.

K. St. Cyrus N.N.R., several, 1961 (E.C.P.-C.).

Alcis repandata L.

A. & K. Common.

Cleorodes lichenaria Hufn.

A. Monymusk, one (Trail, 1878).

K. Rare, Banchory (Reid, 1893). Banchory R.T., two.

Ectropis bistortata Goeze.

A. Monymusk, 1969, Dinnet Muir, one, 1972 (R.M.P.).

K. Banchory R.T., 1973, 1974.

[*E. crepuscularia* D. & S.

Banchory, Monymusk, Cluny (Cowie, 1902). These records are likely to be due to a misidentification of *E. bistortata* which does not appear on Cowie's list.]

Ematurga atomaria L.

A. & K. Abundant on moors.

Bupalus piniaria L.

A. & K. Common in pine woods.

Cabera pusaria L.

A. & K. Common.

C. exanthemata Scop.

A. & K. Not uncommon.

Campaea margaritata L.

A. & K. Common.

Hylaea fasciaria L.

A. & K. Common.

Grophos obfuscatus D. & S.

Fairly common on moors everywhere (Reid, 1893).

A. Not uncommon on moors at Braemar, singly elsewhere (Trail, 1878); abundant, upper Deeside, fairly common Cluny, Hill of Fare (Cowie, 1902). Quite common at Braemar, scarcer on moors eastward to Dinnet Muir (E.C.P.-C., R.M.P.).

K. Muchalls (Cowie, 1902); scarce on higher moors (Horne, 1904). Muchalls, 1940 (D. Sangster); Banchory R.T., one.

G. obscuratus D. & S.

A. Rubislaw, common (Cowie, 1902).

K. Muchalls, common (Trail, 1878); Dunnotar Bay (Dalglish, 1894); between Muchalls and Portlethen (Cowie, 1902). St. Cyrus N.N.R., 1961 (E.C.P.-C.); Muchalls, common (R.M.P.); Cove (E.P.).

Psodos coracina Esp.

A. Common on hills around Braemar above 2,500 ft. (Trail, 1878); Ben Macdhui (Showler, 1955). Common on hills around Braemar, Ben Avon, Beinn a Bhuird (R.M.P., E.C.P.-C.).

Dyscia fagaria Thunb.

Rather scarce, on most moors (Reid, 1893).

A. Rare, Inverurie, Peterhead (Trail, 1878). Dinnet Muir, 1971 (E.P., R.M.P.).

K. Muchalls (Cowie, 1902).

Perconia strigillaria Hübn.

A. Dinnet Muir, common (E.P., R.M.P.).

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THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April, 1890)

The following gentlemen act as Honorary Consultants to the magazine:
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THE ENTOMOLOGIST'S RECORD

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Edited by J. M. CHALMERS-HUNT, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

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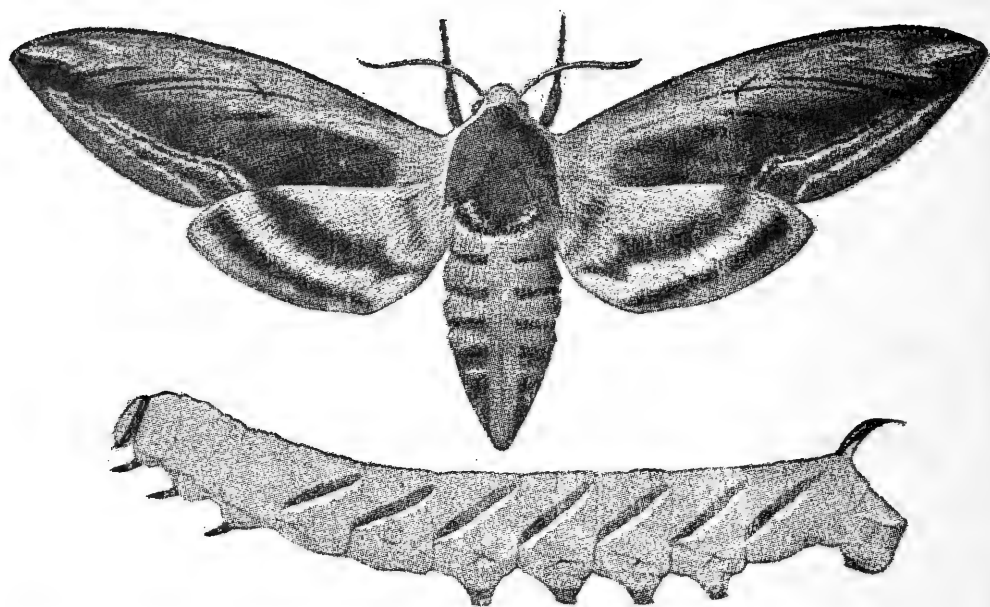
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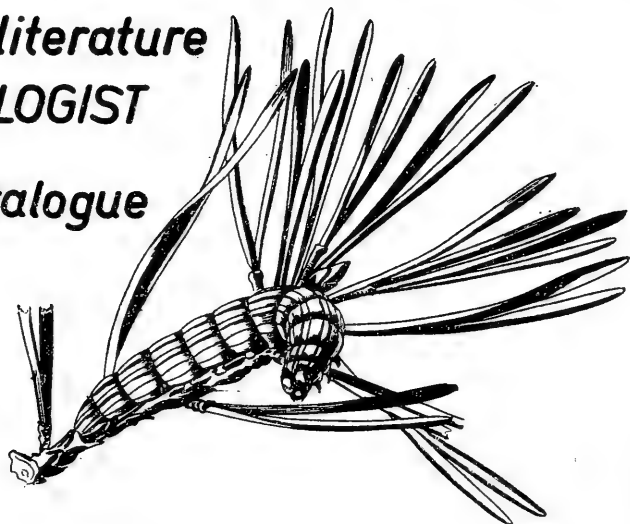
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PLATE VII

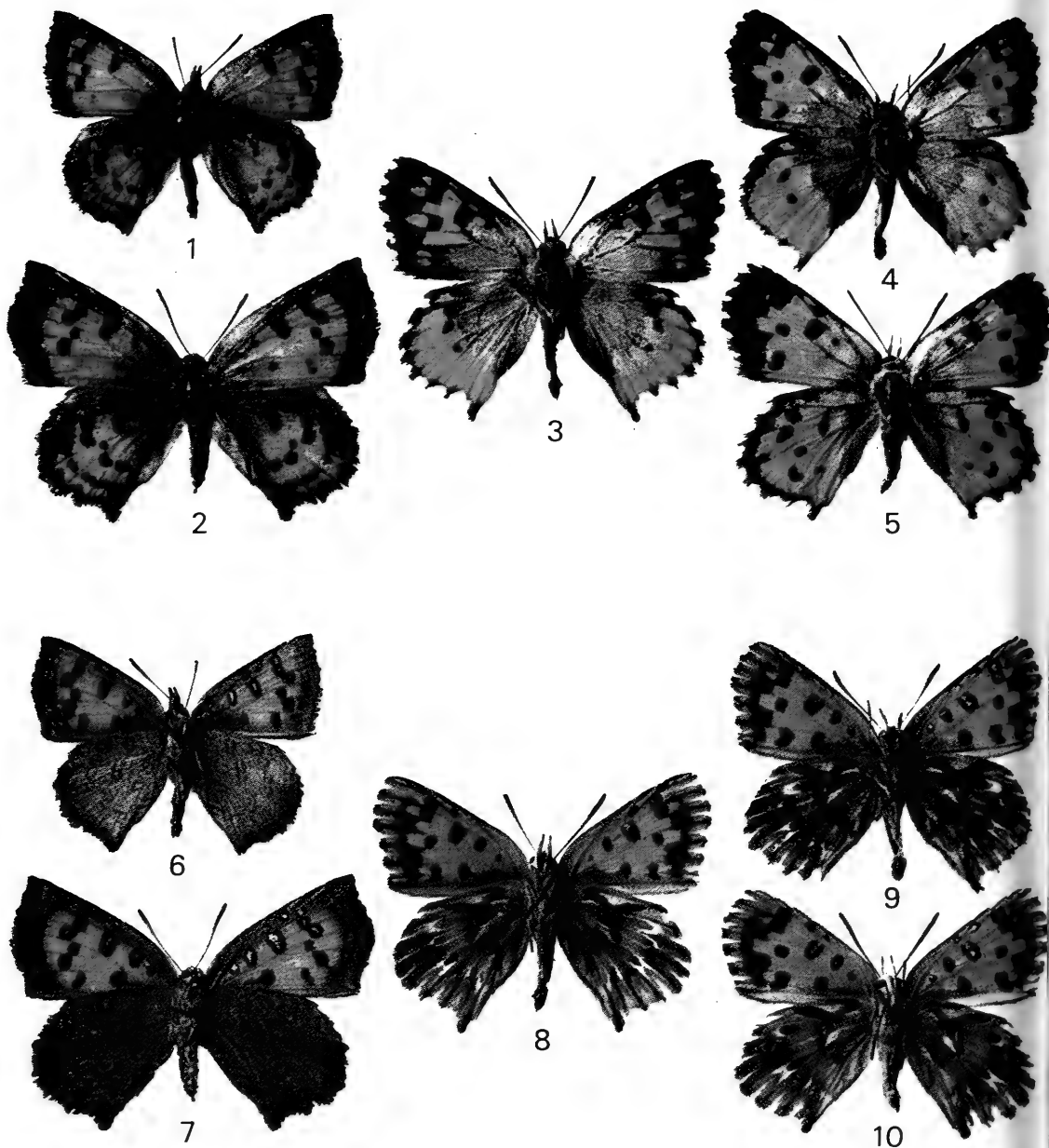


Photo: H. N. Wykeham

Fig. 1, 2: *Poecilmitis (Chrysoritis) cottrelli* spec. nov.: ♂ Holotype and ♀ Allotype (upperside).

Fig. 3: *Poecilmitis (Poecilmitis) daphne* spec. nov.: ♂ Holotype (upperside).

Figs. 4, 5: *Poecilmitis (Poecilmitis) hyperion* spec. nov.: ♂ Holotype and ♀ Allotype (upperside).

Figs. 6, 7: Underside of Figs. 1, 2.

Fig. 8: Underside of Fig. 3.

Figs. 9, 10: Underside of Figs. 4, 5.

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Three New *Poecilmitis* Butler (Lep.: Lycaenidae) from the South Western Cape

By C. G. C. DICKSON

"Blencathra", Cambridge Avenue, St. Michael's Estate,
Cape Town
(Nos. 33-35)

This insect, the first of those described, which was found by Dr. C. B. Cottrell when in company with his father, Mr. J. A. Cottrell, near Spitzkop, Buffelsnek Forestry, in the Knysna Division of the Western Cape Province, differs quite markedly from both *Poecilmitis* (*Chrysoritis*) *zeuxo* (L.) and *P. (C.) zonarius* (Riley) and gives every indication of representing a separate species. Apart from other differences, the wing-shape in itself is characteristic of this butterfly. A description of it follows hereunder. (As *Chrysoritis* Butler has not received general acceptance as a full genus, it is being used as a subgenus in the present context.)

Poecilmitis (*Chrysoritis*) *cottrelli* spec. nov.

In both sexes forewings acutely pointed at apex—and in female a pronounced bulge in middle of distal margin; hindwing rather noticeably produced at anal angle.

Male (Upperside)

Forewing. Black spotting not completely developed discally in the specimens examined. Costal border dark, or mainly so, along its distal half, with marked intrusion of black marking of wing; black distal border moderately broad (almost twice as broad as costal border).

Hindwing. Black spotting on the whole not strongly developed; dark basal suffusion present. The dusky costal border extending down to, or even below, vein 7; dingy-grey inner-marginal area bounded along vein 1b by very dark scaling. Discal spots in areas 4-6 confluent or virtually so (in holotype, very slightly separated where crossed by vein 6) and larger than most, or any, of the other spots in wing. Space between submarginal series and marginal border almost, or entirely, filled in with black scaling from costal border down to vein 4.

Cilia of all wings dark or dusky, more or less variegated, especially in hindwing, with grey.

Underside

Forewing. Discal area rather light orange, the costal, distal and inner-marginal areas fawn-grey, shading into the orange gradually, but the degree of encroachment pronounced in this species. The black spotting, much of it steely-centred, far better developed in inner-half of wing, than it is on the upperside. Submarginal series of dusky markings (which diminish noticeably in size towards, and do not reach apex as well defined markings), fairly broad.

Hindwing. The characteristically fawn-grey surface of the wing has its dark (or dark-edged) spotting fairly well defined, and with the form of submarginal marking which is usual in this group also apparent.

Cilia, in all wings, less dark than on upperside.

Length of forewing: 11.5-12.5 mm. (the former measurement, that of holotype).

Female (Upperside)

This is substantially as in the male.

Forewing. Some additional, vestigial, spotting present. Discocellular marking larger than other spots. (In the female paratype, the wing is more heavily spotted than in the allotype.) Distal border in female allotype much broader than in male specimens—though not, relatively so, in female paratype.

Hindwing. More heavily spotted and marked than in male specimens. Three spots of discal series above vein 4 not necessarily larger than any of the other spots.

Cilia, in all wings, much as in male but, at least in female allotype, less uniform and rather noticeably partly light grey.

Underside

Forewing. Inner boundary of broad grey-brown distal border well defined and not extending into adjacent orange area beyond the series of markings parallel with margin, which it encloses.

Hindwing. Marking, though readily apparent, not contrasting as strongly with its background as in at least two of the males concerned, owing to the wing-surface as a whole being of a darker greyish-brown tone.

Length of forewing: 15.0 mm. (in allotype and single female paratype).

Body and ancillary parts in both sexes much as in *P. (C.) zeuxo* but, at least from the present material, the thorax and abdomen somewhat darker above and with a slightly lighter greyish tone beneath.

♂ Holotype, WESTERN CAPE PROVINCE: Nr. Spitzkop, Buffelsnek Forestry, Knysna, 16.XII.1969 (Dr. C. B. Cottrell); British Museum Reg. No. Rh.17371.

♀ Allotype, W. CAPE PROVINCE: data as for holotype; British Museum Reg. No. Rh.17372.

Paratypes in Coll. C. B. Cottrell: 2 ♂♂, 1 ♀, as holotype.

Owing to their close similarity the male genitalia of most of the species of *Poecilmitis* are of little taxonomic value, those of the present insect as well as the following ones being no exception in this respect. Dr. Cottrell has furnished excellent drawings of the male genitalia of the three taxa caught by himself, which are described in this paper, and has stated in a letter that, by and large, examination of the genitalia has not resulted in any information useful in separating the species or in deciding the status of the new taxa. There are minute differences in the case of the insect under discussion but he would not be prepared to attribute these to other than individual variation, without a major investigation.

It is of great interest that a female specimen of *P. (C.) zeuxo* which was caught by the late K. M. Pennington in Seven Weeks Poort should appear to be very similar to *zeuxo* from the Cape Peninsula, on superficial grounds, the date of capture of this somewhat worn specimen being 26th October, 1946. It

shows no approach whatsoever to the female of *P. (C.) cottrelli*. Seven Weeks Poort lies some 180 miles to the east of Cape Town and the type-locality of *cottrelli* 280 miles east of this town, and the Peninsula. The food-plant is doubtless *Chrysanthemoides* (Compositae) in each case.

Dr. Cottrell has written as follows concerning this newly described butterfly's habitat: — "Unfortunately when I was last there the area was being planted with Pines and although the little patch of indigenous forest at the stream-head will remain, the borders will by now be pretty heavily shaded by the Pines, with the possible exclusion of the *Chrysanthemoides*."

Much pleasure is taken in the opportunity to name this interesting discovery after Mr. J. A. Cottrell, O.B.E., B.A., the distinguished naturalist and ornithologist.

Poecilmitis (Poecilmitis) daphne spec. nov.

Discovered by Dr. C. B. Cottrell on the Kamanassie Mountains, to the east of Oudtshoorn, this very beautiful insect comes closest to *P. pyramus* Pennington, which was originally found near the top of the Zwartberg Pass, 40-50 miles W.N.W. of the Kamanassie Mountains—the two ranges being separated by some comparatively low-lying country. The relative status of the present butterfly has been difficult to determine with certainty, but when considering analogous cases of closely related *Poecilmitis* which are known to be separate species it is felt that it could be more correctly treated as a distinct species, rather than a subspecies of *P. pyramus*. Since there is some considerable doubt as to whether two female specimens which were found with the males in question were in fact conspecific, these females are not being included in the type material, but a short description of them is being appended to the following description of the male.

Average size of males much below that of males of *P. pyramus* Pennington.

Male (Upperside)

Orange-red ground-colour of the rich hue characteristic of *P. pyramus* and the silvery-blue areas with the very strong violaceous lustre in certain lights, which is present in this species—as against the paler (though not less metallic) colouring of *P. plutus* Pennington and some of the other members of the *P. thysbe* group.

Forewing. Blue from wing-base extends to lowest (double) black discal spot in area 1b, as in *pyramus*, but above area 1b is less extensive than in this species, barely entering area 2 and leaving an orange space at distal end of cell. Outer edge of blue area more clear-cut than in *pyramus* but without the black edging that occurs so frequently in its own case, or the frequent obliteration, by black scaling, of orange colouring in areas 1a and 1b distally.

Hindwing. Solid blue of approximately same extent as in *pyramus* specimens in which it is best developed or (as in holotype), more extensive; the degree of iridescence over the orange area rather variable, as in *pyramus*, but perhaps on the whole less extensive. The black marginal spotting, running into

dark divisions of cilia, more completely developed (down to vein 1c) and more neatly defined along length of margin, than in *pyramus*.

Underside

Very much as in *pyramus*, in all wings; in forewing, some of the adjoining black marking is more frequently enlarged so as to coalesce fully with the dark streak parallel with the distal margin.

Length of forewing: 11.0-14.5 mm. (14.0 mm. in holotype). The first measurement is that of an unusually small specimen.

♂ Holotype, WESTERN CAPE PROVINCE: Mannetjieberg, Kamanassieberg, 22.XII.1969. (Dr. C. B. Cottrell); British Museum Reg. No. Rh.17373.

Paratypes in Coll. C. B. Cottrell: data as for holotype, 2 ♂♂.

Description of female which is very doubtfully conspecific with above male.

Upperside

Forewing. Basal blue extends upwards nearer to costal margin than is usual in female of *P. pyramus*.

Hindwing. Marginal black border noticeably wider than in *pyramus*, though decreasing in width progressively and tending to become fragmentary towards anal-angle.

Cilia in all wings with the light spaces less clear-cut than in female of *pyramus* and with orange colouring mixed with the white, and in one specimen largely supplanting it. The wing-margins are in fact more dentate than in the female of *pyramus*—in which they are relatively even, especially in the forewings.

Underside

Forewing. As in *pyramus*, allowing for variation in specimens.

Hindwing. Basically like that of *pyramus* but with a broad median area of the wing which is relatively lighter, together with some other rather different features.

The anal-angular projection of the hindwing is longer than in the female of *pyramus*.

Length of forewing: 13.0-15.5 mm.

One of the specimens (the larger one) has been presented by Dr. Cottrell to the British Museum (Nat. Hist.).

In a recent letter Dr. Cottrell has stated that all the males of *P. daphne* were found at the top of the range and the females, which he assumed at the time were of the same species, not far from them. On the same occasion he caught a male *Poecilmitis* which resembled *P. nigricans* (Aurivillius) and which might need to be investigated if more specimens of it are secured at any time in the future. In view of the characters exhibited by the above two females, the writer is of the opinion that they could possibly represent the female of this *nigricans*-like insect, and thus not that of *P. daphne*.

Concerning the male genitalia of *P. daphne*, in comparison with those of *P. pyramus*, Dr. Cottrell has written:— "There are slight differences between the example of *P. pyramus* and

the Kamanassie Mts. example [*daphne*]. In the latter the valves are slightly less massive and somewhat more slender, the distal portion of the aedeagus is shorter and less pointed and the appendages on the 'elbows' of the subunci are in a partially lateral plane (instead of the anterior/posterior plane as in *pyramus*). Both examples exhibit the notches on the distal points of the juxta (see 1c of figure concerned). Once again I am not prepared to state that any of these differences are significant although the slight difference in aedeagal shape is certainly suggestive."

Dr. Cottrell has proposed the euphonious and appropriate name of *daphne* for this exceedingly beautiful insect—after his mother, Mrs. D. E. Cottrell—with a species thus being named for each of his parents—and, quoting his own words, "in recognition of their active assistance and encouragement of my entomological interests from school days onwards."

Poecilmitis (Poecilmitis) hyperion spec. nov.

This striking member of the group was found by Dr. Cottrell high up on the Zwartberg Pass (Oudtshoorn side), on 18th and 29th December, 1969, just within the area which is frequented by *P. pyramus* Pennington. It is close to *P. swanepoeli*, which was described by the present writer some ten years ago (*J. Ent. Soc. Sth. Afr.*, **27**, No. 2: 160-162, figs. 1-4 (1965)), from specimens from near Prince Albert on the northern side of the Zwartberg; and which, a few years later, was located by Mr. R. D. Stephen at about the same altitude near the Congo Caves, to the south of the Zwartberg.* While it might at first be assumed that the present butterfly was a high-altitude race of the latter insect, there are factors, including the disributional aspect, which do not altogether favour such treatment and it is therefore, somewhat tentatively, being accorded specific status in this paper.

Both sexes are characterised by marked broadening of the black distal border of the forewing upperside, and expansion of the dark marking near the distal margin of the forewing underside.

Male (Upperside)

Forewing. Black distal border so widened as to be in contact with discal spots in at least areas 2 and 4—besides leaving only small spaces of the reddish-orange ground-colour in areas 5 and 6 distad of the black marking in these areas (its reduction greater in area 6).

Hindwing. At least some of the black discal spots apparent in all specimens examined—sometimes absent altogether in the other taxon mentioned above. Dark scaling or marking sub-costally above vein 6, present in all examples—this in one paratype consisting of a solid black oblique streak.

Cilia of forewing mainly black, with very small white punctations; those of hindwing varying as regards development

* From subsequent examination of further material from near the Congo Caves, this has not agreed entirely with specimens from near Prince Albert.

of the dark spaces, but with these on the whole better developed than in the other insect.

Underside

Forewing. The dark streak parallel with the distal margin black in all specimens and broadened so as to run into the adjacent black spots in areas 2 and 4. The streaks extending along the veins, from the dark streak parallel with the margin to the edge of the wing, well defined in all specimens.

Hindwing. Consistently deeply marked in all examples and, in general, more so than in the other taxon concerned.

Length of forewing: 12.5-14.5 mm. (13.0 mm. in holotype).

Female (Upperside)

Forewing. Distal border widened to such an extent as to embrace all spots of discal series except those in areas 1b and 3. (There is, however, a minute spot of orange present in this black area, distad of the black spot in area 5, of discal series.)

Hindwing. Black marginal border decidedly broader than in the other insect, being unbroken through its length.

Cilia with white spaces reduced in size in forewing, but very clear; in hindwing also clear but much larger, and the dark spaces blackish to brown (not black, as in forewing).

Underside

Forewing. Remarks relating to male, fully applicable to female.

Hindwing. Colouring and marking not differing from that of the other insect in question.

Length of forewing: 13.75 mm. (that of allotype—the only known female).

♂ Holotype, WESTERN CAPE PROVINCE: Zwartberg Pass, 18.XII.1969 (Dr. C. B. Cottrell); British Museum Reg. No. Rh.17374.

♀ Allotype, W. CAPE PROVINCE: data as for holotype, 29.XII.1969 (C.B.C.); British Museum Reg. No. Rh.17375.

Paratypes in Coll. C. B. Cottrell, data as holotype, 2 ♂♂, 18.XII.1969, 1 ♂, 29.XII.1969 (C.B.C.).

The name *hyperion* (that for the sun god) was suggested by Dr. Cottrell as a pleasing name for this brilliantly coloured Lycaenid which is amongst the most beautiful of its group.

In this case again, the male genitalia do not seem to possess any clearly characteristic features.

The three interesting butterflies described in these pages have been brought to light through the enthusiasm of Dr. Cottrell and his investigation of the most promising spots in the course of his field work when visiting the Cape.

Final Note

The opportunity is taken to record the capture of a slight variation of *Poecilmitis pyramus* Pennington by Mr. C. W. Wykeham at a high altitude on the Langeberg, above Grootvaders Bosch, on 5th February, 1968—i.e., about 80 miles S.W. of the type-locality. The males, at least, in the series concerned are of a smaller average size than topotypical *pyramus* and have less-heavy black marking on the upperside.

PLATE VIII

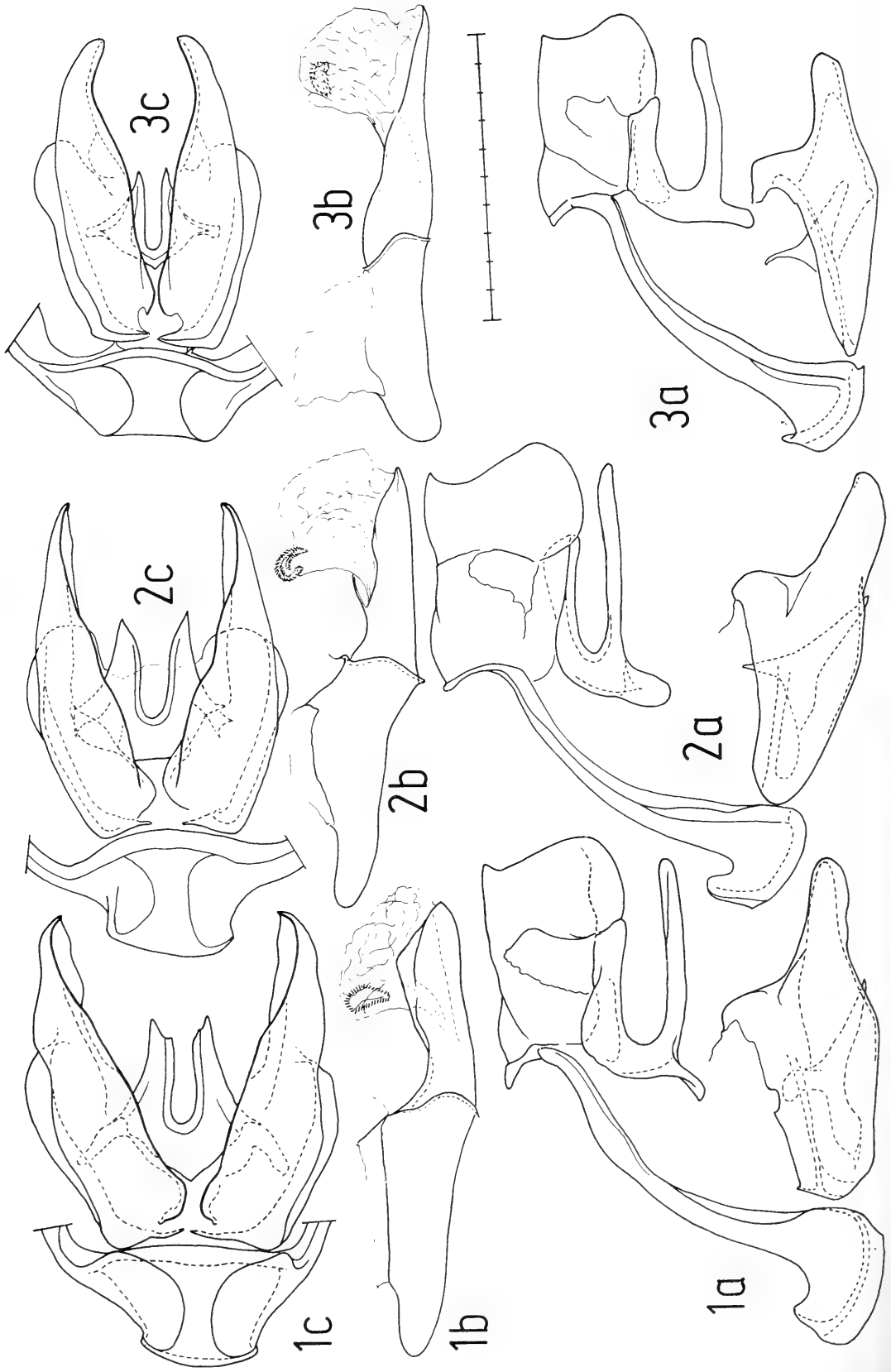


PLATE VIII

Male genitalia of *Poecilmitis* species drawn from unmounted material in alcohol, by C. B. Cottrell.

In each case (a) represents the entire genitalia seen in lateral view from the left side but with the aedeagus omitted; (b) represents the aedeagus in lateral view from the left side; and (c) represents the valves and juxta seen in ventral view after the removal of the tegumen and other dorsal structures. Scale line represents 1 mm.

1a, b, c. *Poecilmitis daphne* spec. nov. Paratype male. Mannetjeberg, Kamanassie Mts., 22.XII.1969. Genit. prep. Cottrell No. 2747.

2a, b, c. *Poecilmitis hyperion* spec. nov. Paratype male. Zwartberg Pass, 18.XII.1969. Genit. prep. Cottrell No. 2748.

3a, b, c. *Poecilmitis cottrelli* spec. nov. Paratype male. Buffelsnek Forestry, Knysna Dist., 16.XII.1969. Genit. prep. Cottrell No. 2749.

Notes and Observations

FAKED INSECTS. — Faked insects reflect the seamy-side of entomology and tend to go unrecorded, but they nonetheless figure to a small extent in the history of insect collecting and should therefore be chronicled. Many years ago, the late C. Granville Clutterbuck of Gloucester showed me a Common Wainscot (*Mythimna pallens* L.), in a collection he had acquired, whose wings were painted with red spots presumably in a crude attempt to simulate a Crimson-speckled Footman (*Utetheisa pulchella* L.). Probably the most remarkable entomological fake though, concerns two male Brimstones (*Gonepteryx rhamni* L.) painted with blue eyes but so cleverly deceptive that they even fooled Linnaeus, who actually described and named them as a new species — *Papilio ecclipsis*! These two curiosities still survive in the Linnean Cabinet at Burlington House. — J. M. CHALMERS-HUNT.

BEDSTRAW HAWKMOTH (HYLES GALLII ROTT.) IN SCOTLAND IN 1975. — A fine female specimen came to a garden m.v. trap in Aviemore on 6th August 1975 at 00.15 a.m. and was kept for eggs. Some observations on oviposition may be of interest. Some fresh sprigs of Lady's Bedstraw (*Galium verum* L.) were placed in a shoe box. After sitting quietly all day, the moth was seen "warming up" in the evening, and when next observed at 03.00 a.m. several eggs were noticed on the flower and fruit pedicels. Having flown round inside the box the female would suddenly hover above the foodplant and deposit her eggs individually. Oviposition was preceded by a slight abdominal contraction while the moth hovered. The small 1mm. diameter lime green eggs resembling the fruits were laid on the pedicels of the flowers and leaves. After egg laying the moth rested away from the food plant, but fresh disturbance induced further oviposition. It was noted that periodic rotation of the box through 90° enhanced the chances of oviposition. — K. M. GRAVENER, 145 The Glade, Shirley, Croydon, Surrey, CR0 7QR.

A Review of the Immigration of *Hyles gallii* Rott. during 1973 with Special Reference to Records for 1972 and 1974

By C. G. M. de WORMS, M.A., Ph.d., F.R.E.S.*

I have thought it of interest to make a survey and analysis of the great invasion of the Bedstraw Hawkmoth (*Hyles gallii* Rott.), which seems to have spread right across the British Isles during the fine summer of 1973, together with a correlation of records of this insect during the preceding year as well as its aftermath in 1974. For nearly 200 years there have been fairly regular records kept of the presence in these Islands of this Hawkmoth, but there have probably been only three other occasions during that period when its immigration reached the proportions of that of 1973. These were the great "Gallii" years of 1870, 1888 and 1955. In this connection it might be of importance to trace the history of the Bedstraw Hawk in Great Britain leading up to the year under review.

As far back as 1812, Haworth mentions the finding of larvae in Devonshire, but not much more is heard of this species until 1834 when about a dozen imagines were taken near Great Yarmouth and larvae were found on the Norfolk dunes. Fortunately from 1850 till 1955 Dr. C. B. Williams has put on record in his "Migration of Insects" the numbers of 29 migrant species for that period of 106 years including, of course, *H. gallii*. Larvae were found in both 1855 and 1859, but it was not until 1870 that there was a great invasion with at least 70 imagines recorded and many hundreds of larvae found in the late summer of that year. However, by far the most celebrated "gallii" year was 1888 when, though 65 Bedstraw hawks were noted, the larvae that summer were said to be numbered almost by the thousand especially on the Lancashire and east coasts. But some of the intervening periods hardly saw anything of this moth. In fact the largest number seen in any year between 1889 and 1955 was seven in 1935 and there were many years earlier this century without a single *gallii* being recorded. Larvae, however, were found in the Camberley area in 1933. The next big year was 1955 when some 50 moths were noted over most of the country and many good series bred from them. For a few years after this until 1958 larvae were found in a particular locality in north Norfolk, thus indicating the species was able to survive our inclement climate for at least three seasons.

For the next 15 years there were not many seasons when *H. gallii* did not appear on our shores, though only very sporadically with an occasional record. However, during this period it reached Shetland and larvae were found in Ireland in 1961. It was in 1962 that Mr. J. Messenger and I had the remarkable experience of taking *H. gallii* and *Celerio livornica* Esp. together on the same night, June 6th, in Co. Kerry.

* Three Oaks, Shore's Road, Woking, Surrey.

According to Mr. B. Lempke of Amsterdam and other authors, the Bedstraw Hawk appeared in great abundance in the larval state in Holland during the later 1960's so that perhaps it is not surprising that we should have had this great visitation in 1973, though it is only quite hypothetical that their origin was just across the North Sea. As will be discussed later, the source of the immigration might well have been in Eastern Russia.

As precursor there was quite a significant immigration in the summer of 1972, when, mainly during July, imagines of *H. gallii* were recorded from Suffolk and Kent with at least one capture as far west as Dingle in Co. Kerry. In this comparatively small incursion with apparently less than 20 records it is of importance to note that there were apparently no captures in the northern areas of these islands, though larvae were found in mid-September near Stoke-on-Trent in Staffs., also in Flintshire, as well as on the Lancashire coast near Silverdale, which is very different from the vast wave of this species that swept northwards during 1973 invasion. But judging from the dates and locations of the 1972 migration as set out below it is possible that one wave came in from the east coast through East Anglia to the edge of the Midlands with another wave perhaps arriving from a more southerly direction and travelling further north as far as Lancashire.

The chief records for 1972 are set out in chronological order as follows with their respective references and names of captors or recorders.

July 14th. Walberswick, Suffolk, two ♂♂ taken at light (Wild, *Ent. Rec.*, **84**: 225).

July 18th. Alford, Lincs., one ♂ taken by G. Wright (Pilcher, *Ent. Rec.*, **84**: 250).

July 17th. Southminster, Essex, two (A. J. Dewick).

July 18th. Near Scunthorpe, Lincs., one ♀, at honeysuckle (Pilcher, *Ent. Rec.*, **84**: 250).

July 19th. Beeley Moor, Derbyshire, one (B. G. Withers).

July 20th. Wrotham, Kent, one in a light trap by Andrew Ruck (Chalmers-Hunt, *Ent. Rec.*, **84**: 286).

July 20th. Ledbury, Hereford, two ♂♂ taken in a light trap (Harper, *Ent. Rec.*, **85**: 68).

July 21st. Dingle, Co. Kerry, one ♀ in a light trap (Huggins, *Ent. Rec.*, **85**: 65).

July 21st. Witherslack, one (K. Bevan).

July 26th. Dungeness, one infertile ♀ (I. A. Watkinson and S. Whitebread).

July 27th. Near Sevenoaks, Kent, one ♀ from which 100 fertile ova were obtained (Dyer, *Ent. Rec.*, **84**: 290).

July (latter half). Eastbourne, one (S. Pooles).

July (latter half). Beer, South Devon (Woolatt).

August 27th. Little Cawthorpe, Louth, Lincs., one (G. Wright).

Larvae of *Hyles gallii* recorded during 1972 in chronological order.

August (no date). Lincoln, one (M. Townsend).

September 9th. Shotton, Flintshire, one (I. Williams).

September 18th. Stoke-on-Trent, one (R. G. Warren).

September 19th. Stoke-on-Trent, one (R. G. Warren).

September 20th. Leighton Moss, Silverdale, Lancs., two (J. Briggs).

September (late). Near Blackpool, Lancs., six (White).

No date. Todmorden, Lancs., one (P. A. Arak).

Coming now to the great incursion of *gallii* during 1973, I would like to say at the outset how extremely grateful I am to many collectors and others who answered my appeal for records, many of whom sent most detailed accounts of taking the imagines or finding the larvae. Above all I must express my great indebtedness to Mr. R. A. French, of Rothamsted Experimental Station, for his help in correlating all the reported insects and larvae and for most kindly preparing and sending the map showing where these occurred in the British Isles in that remarkable year.

The first sign of the invasion came from North Norfolk where Mr. Patrick Kearney was amazed to find a *gallii* in his m.v. trap on June 23rd at his home at Cley-next-Sea and according to Mr. French the last specimen was taken at Gibraltar Point in Lincs., on August 15th. In the intervening period Mr. French knows of at least 65 imagines recorded over most of England and Scotland up to the Orkneys. As will be seen from the map, and as might be expected, the south coast seems to have recorded the greatest impact of insects. Though there were quite a lot of records from the east coast right up to Aberdeen with less numbers of moths noted on the west coast, this region however during September seemed to provide the bulk of the larvae in rather a similar pattern to the 1888 invasion, though in appreciably less numbers. In fact Mr. French estimates the total number of larvae noted not to exceed 200 compared with well over a thousand in 1888. However, several cities, as will be observed from the tables later, harboured the larvae, notably Edinburgh where Mr. Pelham-Clinton found in mid-September seven feeding on fireweed (*Epilobium angustifolium*), their chief pabulum. Several larvae were also recorded from the centre of Lincoln. The main wave of insects seem to have reached the south coast about the third week in July. No less than six examples were taken at or near Swanage, Dorset, at this period in the space of three nights. But by this date two moths had already been noted in Orkney which seems to point distinctly to an almost simultaneous northward movement. Although the insect reached the west coast of Scotland, there does not seem to have been any record from Ireland during 1973. The ensuing list of the principal records of imagines and larvae of *H. gallii*, together with the accompanying map kindly provided by Mr. French, gives some idea of the large area of the British Isles covered by this celebrated migrant Hawkmoth during 1973.

PLATE IX

C. galii 1973

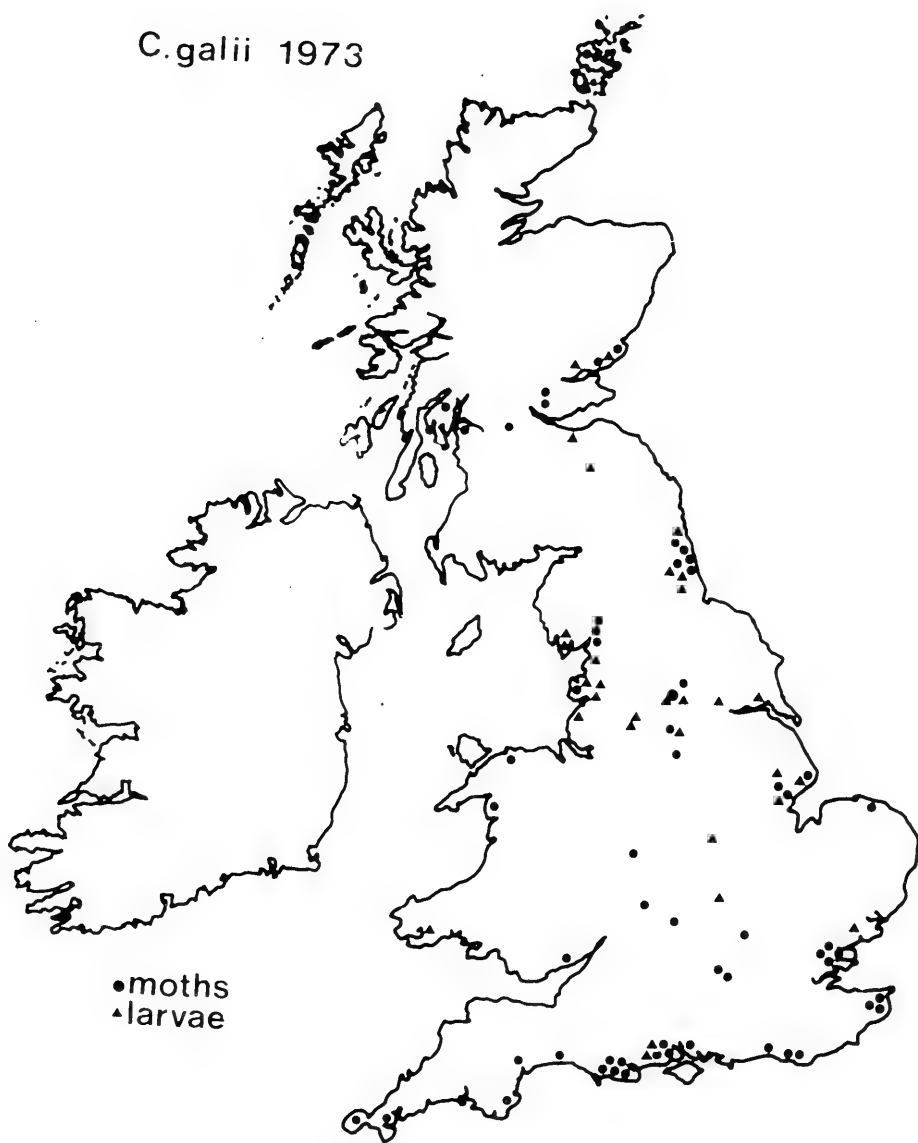


Table A

Records of the Imagines of *Hyles gallii* in 1973 listed geographically by Counties from South to North together with captors, recorders and literature references where published.

- KENT. Sandwich, one ♂, one ♀, taken August 2nd and 3rd (Denis O'Keeffe). Sandwich, one ♀, taken August 10th (Evans, *Ent. Rec.*, **85**: 298).
- SUSSEX. Peacehaven, ♂, July 27th (Pratt, *Ent. Rec.*, **85**: 247). Ferring-on-Sea, ♂, August 11th (Freed, *Ent. Gaz.*, **24**: 297).
- HAMPSHIRE. Fareham, ♂, August 1st (C. Luckens). Minstead, ♂ at light trap, August 1st (Siggs, *Ent. Rec.*, **85**: 225). Boldre, ♀ at light, August 1st (Middleton, *Ent. Rec.*, **85**: 216).
- SURREY. Virginia Water, ♂ at light, July 23rd (P. J. Baker).
- DORSET. Swanage, ♂ taken at dusk, July 28th, and another 29th. Herston, two ♀♀ at light July 29th. Durlston Head, ♂ at dusk, August 1st, and ♀, August 1st/2nd (Brian Elliott and Bernard Skinner).
- DEVON. Exeter, ♀, July 28th (R. A. Plumbley). Axminster, ♀, July 29th/30th (P. Renshaw). Near Berry Head, Brixham, ♂, July 30th/31st (J. W. Phillips).
- CORNWALL. Penzance, ♂, July 23rd (Smith, *Ent. Rec.*, **85**: 269). St. Mawes, ♂, July 23rd (F. Stanley Smith). Falmouth, ♀, August 1st/2nd (D. C. Lees).
- HERTFORDSHIRE. Gaddesden Row, ♂, July 8th (W. F. Badcock).
- ESSEX. Southminster, ♂, July 27th, two ♀♀, August 2nd (A. J. Dewick).
- OXFORDSHIRE. Chipping Norton, ♂, July 30th (Hugo, *Ent. Rec.*, **86**: 25).
- GLOUCESTERSHIRE. Oakridge, ♂, August 2nd (R. P. Demuth).
- MONMOUTH. Usk, ♀, July 31st (G. A. N. Horton).
- NORFOLK. Cley-next-Sea, ♂, June (Patrick Kearney). *Earliest record*.
- LINCOLNSHIRE. Near Boston, ♀, July 22nd (B. Redman). Sleaford, ♂, July 23rd (J. R. Harnett). Gibraltar Point, ♀, August 15th/16th (Pilcher, *Ent. Rec.*, **86**: 94).
- WORCESTERSHIRE. Evesham, worn ♀, July 14th (James, *Ent. Rec.*, **85**: 247).
- N. WALES. Glan Conway, ♂, July 28th (Michaelis, *Ent. Rec.*, **85**: 227).
- STAFFORDSHIRE. Tettenhall, Wolverhampton, ♀, July 30th (W. Long).
- LANCASHIRE. Near Cleverleys, Blackpool, ♂, no date (A. Watson). Thornton, near Fleetwood, ♀, July 29th (J. Thomson).
- YORKSHIRE. Harewood House, near Leeds, ♀, taken July 17th (P. Brown). Emley, ♀, August 2nd, taken by P. Gunson (Gill, *Ent. Rec.*, **85**: 244).

- WESTMORLAND. Kendal, ♂, taken late July (N. L. Birkett).
Beetham, Milnthorpe, ♂ and ♀, July 21st; ♀, July 23rd
(Briggs, *Ent. Rec.*, **85**: 247).
DURHAM. Stanley, ♂, taken July 23rd by J. Henderson (Long,
Ent. Rec., **85**: 245). Peterlee, ♀, July 26th (W. Monck).
NORTHUMBERLAND. High Heaton, one, July 18th. Near
Walker Gate, Newcastle-upon-Tyne, one, July 19th. Plessey
Woods, one seen by two lepidopterists, July 23rd, as it
was feeding at Rose-bay Willow-herb (*per* T. C. Dunn and
A. G. Long, *Ent. Rec.*, **85**: 245).

Scotland

- LANARK. Gartcosh, near Glasgow, one taken, July 16th (C. E.
Palmer).
ARGYLL. Lock Eck, ♂, July 16th, taken by A. Harding (Tom-
linson, *Ent. Rec.*, **85**: 22). Sanna Bay, two ♂♂ disturbed,
July 31st (M. G. Morris).
PERTSHIRE. Pool of Muckhart, ♂, taken July 17th/18th,
♂, taken August 8th (D. M. Bryant).
RENFREW. Kilmacalm, one taken, August 4th (A. M. Mac-
laurin).
ANGUS. Barnhill, Broughty Ferry, ♂, July 17th (J. Wardrope).
KINCARDINE. St. Cyrus National Nature Reserve, one, July
26th (J. Forster).
MORAY. Hopeman, one, August 12th (Loe, *Ent. Gaz.*, **24**:
306).
ORKNEY. Three, including one ♂ and one ♀, in early July at
Quoyberstane, near Kirkwall (Sydney Gauld).
Also, a ♂ recorded at sea in the north Atlantic at 56 16'N. and
15 42'W. on July 15th (L. B. Philpottt).

Table B

Records of the Larvae of *Hyles gallii* taken in the late summer of 1973 and recorded by Counties from south to north.

- HAMPSHIRE. Rhinefields Enclosure, New Forest, two small
larvae at his house in early August (G. J. Nixon).
LINCOLNSHIRE. Just over 50 larvae in the vicinity of Gibralt-
ar Point in September, and seven more in the City of
Lincoln (Pilcher, *Ent. Rec.*, **86**: 94).
NORTHAMPTONSHIRE. One larva found and two others
destroyed in Mount Parks Road, Northampton, September
13th (J. Payne of Wellingborough).
ESSEX. Stanway, one in third week of July (T. C. Hitchman).
STAFFORDSHIRE. Glascote, near Tamworth, eight in August;
and a further five in the Hanley district also at this period
(Warren, *Ent. Gaz.*, **25**: 12).
WALES. Pembroke Docks, one in September (Greenway). Aber-
dovey Golf Course, four, August 24th (D. R. J. Haigh).
Near Morfa, Harlech, one in August (J. E. Bebington).
YORKSHIRE. Little Keston, near Bradford, three on *Epilo-
bium*, September 12th/18th (? recorder). Wombwell, near

Barnsley, 40, September 9th/10th; Near Selby, six, September 1st/8th (Gill, *Ent. Rec.*, **85**: 271). Skidby, Cottingham, five, August 19th (I. Blackburn). Little Horton, near Bradford, one, September 5th (P. Hoy).

LEICESTERSHIRE. Leicester, one, September 12th (Miss J. E. Dawson).

DERBYSHIRE. Derby, one, September 7th (Foster).

LANCASHIRE. Sandscale Warren, near Barrow-in-Furness, 16, September 5th, and eight September 10th (Briggs, *Ent. Rec.*, **85**: 272). Between Cleverleys and Fleetwood, one September 9th (A. Watson). Near Oldham, three, including two on September 23rd. Near Chadderton, two, September 23rd (L. Kidd). Hoghton, near Preston, one, September (J. Whiteside). Near Lancaster, one, September, taken by a schoolboy (W. A. Watson). Fleetwood, one, September (J. Thompson).

WESTMORLAND. Kendal, one, September 12th (R. Harding).

DURHAM. Shildon, one, September 12th (G. Donald). Esh Winning, one, October 11th (D. Jude). Durham, one, September 28th (S. Silverside).

NORTHUMBERLAND. Blyth, one, September 14th (J. Bradley).

Scotland

SELKIRKSHIRE. Selkirk, one, October 17th, found by a schoolboy. ? recorder (A. Buckham).

MIDLOTHIAN. Seven larvae found in the centre of Edinburgh, September 13th/25th (E. C. Pelham-Clinton).

ANGUS. East End, Dundee, two, August 2nd (J. Wardrope).

PERTSHIRE. Errol, one, October 2nd (S. Gordon).

To sum up for 1973, Mr. R. A. French finds his total records for that year are of 65 imagines compared with 70 in 1870, but only 193 larvae which is far below the huge total of larvae in 1888.

It might have been thought that following the great incursion of the Bedstraw Hawk in 1973, there would have been a fair number of records for 1974. But this was not to be and apparently only seven of this species were noted as follows:

Records of the Imagines of *Hyles gallii* in 1974 arranged chronologically.

June 11th/12th. South Hiendley, near Barnsley, Yorkshire, one (F. Snookes).

June 13th. Batheaston, near Bath, ♂, taken at dusk in the recorder's garden (Moore, *Ent. Rec.*, **86**: 221).

June 22nd. Scunthorpe, Lincs., two ♂♂, taken in a garden (Duddington, *Ent. Gaz.*, **25**: 304).

July 29th. Fair Isle, ♂ taken (B. Spence).

August 3rd. Quendale sand dunes, near Sumburgh Head, on the southern most end of the Shetland mainland, ♂ taken (Bernard Skinner).

August 16th. Baltasound, Unst, the most northerly island of Shetland, a fertile ♀ at light trap (Bernard Skinner).

What is most outstanding in these few records for 1974 is the divergence of period between the four examples taken in Southern and Midland England and the three specimens from the most northerly part of Britain, notably Shetland. It would seem that the southern insects were most likely to be the offspring of the large numbers of larvae found in the late summer and it would appear that very few of these survived the winter of 1973-1974 and there do not seem to be any records of wild larvae for late 1974.

However, the two Shetland specimens taken at the two extremes of the group of islands seem to indicate a separate incursion, possibly from Scandinavia or even Russia, which brings a general discussion on the possible origin of both the smaller invasion in 1972 and the great one in 1973.

Mention has already been made of the abundance of *H. gallii* in Holland, mainly in the larval state, in the late 1960's, but Mr. B. J. Lempke is of the opinion that our insects did not come from that source, but most probably from much further afield. In this connection, Mr. Peter Davey of the Meteorological Office at Bracknell, Berks., has put forward a very novel and feasible theory, firstly for some of the 1972 visitors. He has mapped a trajectory for examples taken at Ledbury, Witherslack and near Matlock with a take-off as far off as the Ukraine. Apparently weather conditions were just right at that period in those remote regions of Eastern Europe for these insects to make a direct flight from their very probable source of origin and breeding grounds in 1972. Mr. Davey has made a possible trajectory course for an individual caught near Matlock in Derbyshire on the night of July 19th/20th, 1972, beginning in the Ukraine just north of the Black Sea where day temperatures had been very warm for the period just prior to this date with very little rainfall. It had been exceptionally hot in these regions throughout May, June and the first half of July. Similarly Mr. Davey has traced the possible flight trajectory of a specimen taken at Witherslack on July 21st, 1972 which according to his calculations followed a path slightly north of the Matlock insect in reaching its destination after alighting on the east side of the Pennines where the overnight temperature had dropped considerably on that particular occasion.

As for the 1973 invasion he considers that the source certainly of the northerly captures was probably much further west on the borders of Russia and Poland, but in this theory it is remarkable that hardly any captures were made in Holland. He estimates the average speed of flight at 10 miles per hour and says that a few nights in mid-July 1973 were apparently the only ones likely to be favourable for an immigration and considers some of the 1973 records were the offspring of the 1972 immigrants. Though this is possible, it would seem there was a large influx of the moth from over the Channel certainly into southern England during the last ten days of July and in early August.

Naturally these theories of the origin of these migrations with modern meteorological knowledge are a very valuable guideline to indicate how these quite phenomenal movements of such insects as the Bedstraw Hawk can take their source from a particular area of the world given the right type of meteorological conditions, but apparently in the instance of the migrations under review we have very little data, if any, from the Continent to indicate from records any very definite path of flight, certainly across northern Europe.

However, in the above survey I have endeavoured to correlate and analyse all the known captures of imagines of *Hyles gallii* covering 1972, 1973 and 1974 together with its larvae found in Great Britain.

Current Literature

Fauna Entomologica Scandinavica, Volume 2: The Sesiidae (Lepidoptera) of Fennoscandia and Denmark by **M. Fibiger** and **N. P. Kristensen**. 28 coloured figures by **R. Johansson** and 116 other illustrations. 92 pp., map and four distribution tables. 8vo., stiff wrappers. Scandinavian Science Press Ltd., Gadstrup, Denmark. U.K. agent: E. W. Classey Ltd. 1974. £3.35p.

This volume deals with the 22 species of Sesiidae of N.W. Europe (including Great Britain) and in accordance with the editorial policy all British species receive full treatment whether or not their occurrence in Fennoscandia and Denmark is likely.

Each species is keyed, diagnosed and illustrated in colour. The genitalia in both sexes are described and figured. Information on distinguishing characters of larvae and pupae are provided for many species. There are sections on the bionomics of each species and details of collecting and rearing techniques. Some of the collecting methods appear to be highly effectual as well as novel and are thus a notable feature in a group whose species owing to their habits are among the most difficult to collect.

The map and distribution tables add much to the interest of the work though in the latter the inclusion of *Pennisetia hylaeiformis* (Lasp.) as British is surely a mistake. The volume concludes with an index and a bibliography of 60 items referred to in the text.

The reviewer was particularly impressed by the amount of detailed and useful information contained in this monograph, the clear and concise manner in which it is presented and the high quality of the illustrations—those in colour being especially fine. The authors and artists are to be congratulated on this important contribution to the study of the Clearwings, and we heartily recommend this book to all interested in this fascinating group. — J.M.C.-H.

Notes on the Oak-feeding Species of *Phyllonorycter* Hübner (Lep.: Gracillariidae)

By A. M. EMMET*

(1) *Phyllonorycter muelleriella* Zeller (*amyotella* Duponchel). In my recent paper on this species (Emmet, 1974), the records I gave for Gloucestershire were old and uncertain. Mr. Leslie Price of Stroud has been prompted to send me particulars of more recent captures not hitherto published as he was unaware that the moth was so local. They are given here with his permission. During the years 1954, 1955 and 1964 he took eight specimens in the county. Seven of these were from the Forest of Dean (Speech House and Cannop Ponds) and one from Dymock. This last locality is only a mile or two from the border with Herefordshire, and only a little further from Worcester-shire, so it is likely that the range of the moth extends into both these counties. Mr. Price's specimens were all taken as adults; he found one resting on a tree trunk and disturbed the others from foliage. Mr. D. W. H. Fennell bred the species in 1974 from Linton, near Dymock.

I have also received additional north-western records from Dr. R. Askew and Dr. M. Shaw of Manchester University, who have bred *Phyllonorycter* imagines in the course of their research into their parasites. Their specimens are from three localities: (a) Delamere Forest, Cheshire, from a mine on *Quercus robur* or *Q. petraea* collected on 29.x.1969. This seems to constitute a new county record. (b) Between Newby Bridge and Hawks-head, North Lancashire (Cumbria), from a mine on *Q. petraea* collected on 8th October, 1970. (c) A locality not precisely specified in the Lake District, Westmorland (Cumbria), from a mine on *Q. petraea*.

(2) *P. quercifoliella* Zeller and *P. harrisella* Linnaeus. After the specimens of *muelleriella* had been extracted from the Manchester consignment, there were exactly one hundred moths left. The following figures are therefore both actual and percentages. There were 49 *harrisella* and 29 *quercifoliella*: in the south of England *quercifoliella* is usually the more plentiful species.

(3) *P. heegeriella* Zeller. The remaining 22 moths from Manchester belonged to this species, about half of them being of a form which appears to be peculiar to the north-western counties. The typical form has the basal two-fifths of the wing clear, shining white and the outer three-fifths pale golden. There is a blackish fuscous basal streak to two-fifths. This springs from the base of the costa and not, as is usual in the species of the genus possessing this character, from the centre of the wing base; Bradley, Jacobs and Tremewan (1969) show this streak distinctly too low in their figure and Jacobs (1945) errs slightly in the same direction. The streak is obscurely edged above with pale golden. There are four costal and three dorsal wedge-shaped white strigulae, inwardly edged with sharply defined lines of blackish fuscous. The north-western form has a very different

* Labrey Cottage, Victoria Gardens, Saffron Walden, Essex.

appearance. The ground colour of the whole forewing is dull golden, but the tips of the scales are so broadly greyish fuscous as almost to obscure their golden bases, and this latter colour can only be seen in many specimens under magnification. The dark-tipped scales give the wings a coarse, roughened appearance. There is a broad, centrally placed *white* basal streak, diffusedly edged above with dark fuscous, an effect produced by an intensification of the darkening of the scale tips. This obscure dark line corresponds with the clearly defined blackish basal streak of the typical form and it now becomes clear why the latter is situated so close to the costa. The dark edging of the costal and dorsal strigulae is likewise blurred and tends to merge into the apparent ground colour. Whereas the typical *heegeriella* appears as an inwardly white and outwardly pale golden insect with sharp black markings, the north-western form shows as a uniformly greyish moth with diffused white markings. It is much less beautiful and somewhat resembles a small and shabby specimen of *P. distentella* Zeller (Jacobs, 1945, Pl. 3, fig. B1); in fact when I reared this form from Arnside Knott, Westmorland, I at first thought it was that insect, as did Mr. Jacobs momentarily, when I showed him the specimen. There are examples of this form, taken in Lancashire and Westmorland by Threlfall and Hodgkinson, in the Bankes collection at the British Museum (Natural History). Intermediate forms occur. So far as I know, this form has not hitherto been described.

(4) *P. distentella* Zeller. Meyrick (1928) mentions only Herefordshire in giving the distribution of this moth, and it still occurs in that county, for a specimen was taken there in 1974. Does it not occur elsewhere in Britain?¹

(5) *P. messaniella* Zeller. There is a mystery concerning the winter behaviour of that large element of this species which we find feeding on deciduous trees (cf. Emmet, 1970). The principal foodplant is the evergreen holm oak (*Quercus ilex*) and here there are no problems. The moth has three generations, the last of them providing adults in October and November. The autumnal females lay their eggs on the leaves of their foodplant in the normal way, and the ensuing larvae feed up during the winter, faster or slower according to temperature, thus becoming full-fed as early as February, or as late as April. But during the summer months larvae are also to be found on deciduous foodplants such as oaks (*Quercus robur*, *Q. pretraea*, and *Q. cerris*), beech, including copper beech, hornbeam, sweet chestnut and even lime (*teste* D. W. H. Fennell (1974) though his larvae jibbed at this foodplant and the adult failed to emerge properly). The puzzling factor is that larvae in this category sometimes occur at such great distances from holm oaks that spring dispersal from that tree can almost be discounted. For example, in July 1974 I collected mines yielding *messaniella* on *Q. robur*

¹ The late H. W. Daltry states (*Entomologist*, 69: 114) that in 1935 he took the imago of *distentella* in Blean Woods, Kent, but we are unaware of any other record of the occurrence of this species outside Herefordshire.—Editor.

at Ballynahinch and Clifden in Co. Galway; these localities, about ten miles apart, are situated close to the Atlantic seaboard and about 50 miles west of Galway city. The nearest recorded holm oaks are in south Kerry (Perring and Walters, 1963). My enquiries failed to elicit any information of more local examples in parks or gardens, though I did find one nearer than those shown in the Botanical Atlas; this was at Tralee in north Kerry, 90 miles away in a line lying mostly over Atlantic waters. Well, of course there may be an odd holm oak growing undetected less far from Ballynahinch, but this would not refute the general drift of my argument, that *messaniella* does occur, even commonly, far from any evergreen oak, leading one to suppose that it can subsist independently of that tree. To do this, some measure of adaptation would be necessary. Let us consider the possibilities.

(a) If the moth can disperse up to one hundred miles from its host tree, its progeny might be equally capable of returning thither. This theory presupposes that *messaniella* possesses a mechanism similar to that of *Danaus plexippus* Linnaeus, a species breeding in Canada and overwintering in California; succeeding generations are able to find their way to the self-same tree as that occupied for hibernation by their parents. The weakness of this supposition is that *messaniella* is too frail an insect to be able to cope competently with long journeys; its performance against a head-wind would be abysmal.

(b) The autumnal female could lay her eggs on buds or twigs and their hatching could be delayed until the sprouting of the spring foliage. There is no precedent for such behaviour within the genus, for the larvae mine from their ova direct into leaves or stems; they are not adapted to wander in search of their food.

(c) The insect could overwinter within the fallen leaf, either as a full-fed larva or a pupa. This is its obvious course, for such is the behaviour of the bulk of its congeners. But if it did this, we should rear *messaniella* along with *quercifoliella* and the rest of the oak-feeding *Phyllonorycter* species, from the leaves we pick from the trees in the autumn or gather up from the ground in the winter; I have never heard of this being accomplished.

(d) The adult female, if she cannot find suitable leaves on which to lay in the autumn, might overwinter like *P. comparella* Zeller and oviposit on the new foliage in the spring, some five or six months after her evergreen-based relatives have died, their duty done. If she could do this, she would surely turn up on mild nights in collectors' light traps during the early months of the year, for the species is certainly attracted to light. I have heard of no such capture.

(e) There might be an alternative evergreen foodplant utilised in winter where holm oak is not available. But it is almost inconceivable that the conspicuous mines of such a common moth should escape the questing eyes of an entomologist bent on winter fieldwork.

(f) The larva might feed on a different part of the tree in winter, just as *Etainia sericopeza* Zeller feeds on the keys and seeds of Norway maple (*Acer platanoides*) in summer, but under the bark of twigs and in leaf-buds in winter (Emmet, 1973). On the face of it, it seems an impossible course for a *Phyllonorycter*, but who would have suspected *sericopeza* of living a double life? The life history of *P. ulicicolella* Stainton and *P. scopariella* Zeller demonstrate that the mining of tender bark is possible for the genus.

(g) Finally we are faced with the possibility that the moth is migratory in a self-destructive way, temporarily colonising localities where it has no hope of winter survival. The distance it apparently travels from base, the regularity with which it reappears in far-flung localities, and its abundance are arguments against this option, but nevertheless, it seems to be the least impossible among the unlikelyhoods I have listed.

Stainton (1857) wrote of *messaniella*: "It is not very creditable to English entomologists that one of the very commonest of our insects should have been first described by a German from specimens he took when visiting Sicily." If we can solve the problem of its winter purveyance, we may be able to lift our heads again.

(6) *P. lautella* Zeller. Meyrick (1928) adds a postscript after his entry for this species: "The Scotch form is sometimes even dark bronzy-fuscous." This dark form was formerly supposed to be a separate species under the name *irradiella* Scott. Thus Stainton (1857 and 1859) accords it specific status and cites Scarborough and Renfrew as its localities. Morris (1872) repeats these localities and adds Beckenham and Dublin. However, neither Jacobs (1945) nor Bradley, Jacobs and Tremewan (1969) make any mention of this very distinct form.

I have bred *f. irradiella* (but not the typical form) from Ballynahinch and there are examples of it in the British Museum (Natural History) from North Wales, presented by Mr. H. N. Michaelis. Mr. Jacobs has reared it from (Bromley) Kent mines (compare Morris's record from Beckenham). So the dark form is not exclusively Scottish though the evidence suggests that it occurs more frequently in the north and west. Work needs to be done on recording the distribution of the two forms and ascertaining the extent to which they overlap.

(7) *P. roboris* Zeller. My wife netted a specimen of this rare species on 15th June, 1974 in Herefordshire, and I bred two more from a handful of mines collected on 16th November in the same locality. The mined leaves were brought indoors in late January and the imagines emerged in mid-March, about a fortnight after the commoner species in the same material had ceased to come out. Mr. E. C. Pelham-Clinton, who has visited the same wood in quest of this species, has very tentatively suggested that it may be univoltine. When entomological time was young, collectors in Britain and on the continent interchanged their information freely. Consequently it was natural for writers such as Stainton to supplement their imperfect know-

ledge of a species newly found in Britain with information gleaned from abroad; thus continental voltinism was sometimes attributed to a species without proof that it followed the same regime in this country. If (it is a big "if") *roboris* is univoltine in Britain, it would explain (a) the relatively late date of the specimen taken by my wife; (b) the relatively late date of the emergence of the bred specimens; and (c) the absence of *roboris* from the much larger sample of mined oak leaves which I collected at the Herefordshire locality on 17th July, 1974. A collector has only to say that he has bred *roboris* from mines collected in July to disprove this supposition.

The differences described below between the mines of *roboris* and the other oak-feeding species of *Phyllonorycter* are based on my own observations together with those of Jacobs (1945), Hering (1957) and Mr. D. W. H. Fennell who has also bred *roboris* from mines collected in Herefordshire in the autumn of 1974. The mine is relatively large and is frequently placed near the petiole, where it extends from the midrib to the leaf margin. The completed mine is strongly arched. At the summit of the arch on the upper side there is a large green patch where the parenchyma has not been eaten, and it will shortly be seen that this area has been left for a purpose. Surrounding this patch the surface has a marbled aspect due to smaller uneaten spots of green. The lower surface of the mine usually lacks the longitudinal fold present with other species. When it spins its cocoon, *roboris* differs, as it makes no use of its frass to reinforce the construction; instead it spins a stout, parchment-like cocoon against the green, uneaten blob on the top of the mine. When mined leaves containing pupae of the other species are held up to the light, the frass-lined cocoons are clearly visible; however, if a mine of *roboris* is examined in the same way, it is found to be completely opaque, and nothing within is to be observed. Although there is no contact between the cocoon and the lower surface of the leaf, on eclosion the pupa projects through the lower epidermis like that of other species; whereas the exuviae of the latter are pale olive or reddish brown, those of *roboris* are readily distinguishable, being of a dark, blackish hue.

(8) *P. saportella* Duponchel (*hortella* Fabricius). I mention this species only to be comprehensive. Apart from stating that it seems very scarce and elusive and that little has been heard of it recently, I have nothing to communicate. Perhaps some collector with up-to-date experience of it may care to contribute his information.

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Further Notes on the Oak-feeding Species of *Phyllonorycter* Hübner (Lep.: Gracillariidae)

By D. W. H. ffennell*

Since 1968 I have been collecting *Phyllonorycter* mines on oak from various localities in Herefordshire in search of the rarer species, though only in the last two years have I met with success, for reasons which I will discuss later. Accordingly, Colonel Emmet's paper on this subject in this issue sent me scurrying to my notebooks to see whether I could throw any further light on the question of voltinism in these species.

The following table gives the dates of emergence of the various species bred in 1974 and 1975. Since the mines from the different localities were brought into the warm on different dates, there is no significance in the actual emergence dates, but only in the sequence of emergence in any one locality.

1973/74	Linton Map Ref. SO/6525	<i>P. harrisella</i> (Linn.) <i>P. quercifoliella</i> (Zell.) <i>P. muelleriella</i> (Zell.)	Mar. 17 Mar. 8, 16(2), 17 Apr. 15
1974/75	Linton. Map Ref. As above	<i>P. harrisella</i> <i>P. heegeriella</i> (Zell.) <i>P. quercifoliella</i> <i>P. muelleriella</i> <i>P. distentella</i> (Zell.)	Apr. 19 Apr. 12(2), 15, 17, 18 Mar. 31, Apr. 9(3) Apr. 11, 20 Apr. 11, 12
	Monning- ton. Map Ref. SO/3544	<i>P. roboris</i> (Zell.) <i>P. quercifoliella</i>	Mar. 27 Mar. 23, 26(2) 31, Apr. 1
	Woolhope. Map Ref. SO/6135	<i>P. roboris</i> <i>P. harrisella</i>	Mar. 28 Apr. 6
	Hough Wood. Map Ref. SO/5936	<i>P. roboris</i> <i>P. harrisella</i> <i>P. heegeriella</i> <i>P. quercifoliella</i>	Apr. 2, 10, 16(2) Apr. 6, 14, 18 Apr. 15, 19, 27 Mar. 27, Apr. 4, 5, 6, 14

* Martyr Worthy Place, Martyr Worthy, near Winchester, Hampshire.

No certain deductions can be made from such a small sample. However, it seems that *P. roboris* has been commoner in 1975 than for many years, and as it is not clear whether this is a trend or an exception, we should perhaps draw such inferences as we can, for fear that no better opportunity may arise. The following possibilities suggest themselves:—

- (1) *P. quercifoliella* is the earliest to emerge.
- (2) *P. heegeriella* is the latest to emerge.
- (3) There is no evidence that *P. roboris* or *P. distentella* are univoltine.
- (4) There is an indication that *P. muelleriella* may be partially univoltine. The specimen which emerged in 1974 four weeks after all others in that batch would probably have emerged in June in the natural state.

This last inference, coupled with Col. Emmet's suggestions regarding *P. roboris*, raises the possibility that both these species may be partially univoltine in Herefordshire. Unfortunately there seem to be no records of *P. distentella* from further north, but if somebody could visit the northern localities of *P. roboris* and *P. muelleriella* at the appropriate dates he might discover, by taking the moths in the field, whether they are univoltine there.

Now for the reasons why I have only recently succeeded in breeding these species:—

(1) In previous years I collected fallen leaves from mature trees, being under the impression that the rare species were overhead canopy feeders. In the autumn of 1974 I altered my method, and collected *only* from young trees, saplings and hedgerow bushes.

(2) Partly by chance and partly because they seemed to harbour more mines, most of the trees under which I collected before 1974 were *Quercus robur*. In 1974, however, mines were taken impartially from *Q. robur*, *Q. petraea* and *Q. cerris*. Recently I dissected those mines from which a predator, or nothing, had emerged, and identified them where possible with the following result:

	<i>Q. cerris</i>	<i>Q. robur</i>	<i>Q. Petraea</i>	
<i>P. roboris</i>	6		4	
<i>P. heegeriella</i>		7		
<i>P. muelleriella</i>	2			
<i>P. distentella</i>		5		

There is food for thought in that both mines of *P. muelleriella* were on *Q. cerris*, which Hering states to be the only foodplant of the species; whereas the records quoted by Col. Emmet from Cheshire, Lancashire and Westmorland are said to have been from *Q. petraea* and possibly *Q. robur*.

My mines were collected too late in the year for differences in the upperside of the leaf to be very noticeable. There were, however, characters in the epidermis of the underside which may help to distinguish the rarer species from each other:—

(1) *P. roboris*. Light in colour, smooth, even texture, no wrinkle. Pupa case blackish brown.

(2) *P. distentella*. Darker than *P. roboris*, strongly wrinkled along the centre, becoming less so towards the edges where it is smooth. Pupa case golden brown.

(3) *P. muelleriella*. Much the darkest of the three, about the same colour as the leaf. Deeply and evenly corrugated over the whole surface. Pupa case dark brown.

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Current Literature

Carabologia: Revue trimestrielle de Carabologie. Ed. Michel Tarrier and Jean Delacre. No. I: 43 pp., 24 x 15.5 cm., stiff covers. Subscription for 1975: 85.00ff.

This new three-monthly French journal marks a departure in being devoted to a single insect family—the Carabidae or ground-beetles of the world. The emphasis appears likely to be at first upon the great genus *Carabus*, with various S. European members of which this first issue is wholly concerned; these are large beetles of outstanding beauty whose graceful forms and bold, varied sculpture are often enlivened with splendid metallic hues. Unfortunately, the endless geographical and other variations they present have given rise to a vast proliferation of infra-specific taxa, including named races, "quasi-species", "citra-species", subspecies, "nationes", forms, varieties, aberrations, etc. One has only to glance at the caption (inside cover) to the fine colour photograph outside, for an example of this cumbersome apparatus; and, we at least, cannot but sympathise with M. Thierry Deuve's eloquent plea (pp. 4-5) for simplification. He points out, for instance, that the unusual degree of biological plasticity shown by these insects cannot really be reflected by a rigid hierarchial system of nomenclature, however elaborate. The editorial aim, indeed, is to inject some reasoned order into the chaos. M. Tarrier contributes the bulk of this number, which is illustrated profusely with excellent photographs mostly of whole beetles. The production, quality of paper and printing, and general presentation, is first-rate; and we echo the hope that *Carabologia* will prosper. — A.A.A.

West Sussex to Wester Ross in 1974

By T. J. RADFORD*

In August 1973 I moved from Nottingham to an area of West Sussex, well known for its variety of Lepidoptera and other insect life. Having already sampled some of the entomological riches of this area on week-end visits, I looked forward during the latter part of 1973 to my first full season in this exciting part of West Sussex.

January is usually the least productive month of the year, but 1974 was exceptionally mild, though characterised by heavy rain and hurricane force winds, I operated my M.V. trap in the garden on ten nights, and only once was it empty. The most regular visitors were *Phigalia pilosaria* Denis and Schiff. (which I had taken here as early as 21st December, 1973) and *Conistra ligula* Esp. *Thera rupicaprararia* Denis and Schiff. appeared on the 19th and also the first *Xylocampa areola* Esp. *Eranis leucophaearia* Denis and Schiff. followed on the 20th but was not common.

February was also mild, but the first part of the month was so stormy that the trap was not operated until the 12th. Some 15 species were taken on 12 nights. The first *Orthosia gothica* Linn. appeared on the 15th and many of the common spring moths were well on the way by the end of the month. One interesting capture was *Achlya flavicornis* Linn. on the 21st, but the most unusual occurrence was a single *Gonodontis bidentata* Clerck on the 16th.

March showed a pleasing increase in the numbers of moths but little that was unusual. The best nights were the 25th with 155 moths of 17 species and the 27th with 198 moths of 15 species. The most interesting newcomer was a single *Apocheima hispidaria* Denis and Schiff. on the 6th—a new species to me. Other species of interest to occur were *Trichopteryx polycommata* Denis and Schiff. on the 13th; *Lithophane socia* Hufn. on the 16th; *Orthosia populata* Fabr. on the 17th; *Dasycampa rubiginea* Denis and Schiff. on the 21st; *Gymnoscelis pumilata* Hübn. on the 25th and *Phlogophora meticulosa* Linn. on the 26th. *C. ligula* occurred regularly up to the 26th.

There were few butterflies in evidence before the 25th, but *Gonepteryx rhamni* Linn., *Aglaïs urticae* Linn., *Polygonia c-album* Linn. and *Nymphalis io* Linn. all appeared before the end of the month.

April was dry, warm and sunny, but the nights were frequently cool and dominated by north easterly winds, which are not conducive to good catches. *Orthosia advena* Denis and Schiff. was taken on the 1st, and a second *D. rubiginea* occurred on the 4th. On the 9th, however, the anticyclone began to decline as a shallow low moved up from France. The wind dropped, and in addition to good numbers of hibernated butterflies on the wing, *Anthocharis cardamines* Linn., *Pieris rapae* Linn., *Pieris napi* Linn. and *Pararge aegeria* Linn. were also seen. That

* Bramblings, West Walberton Lane, Walberton, Arundel, Sussex.

night was excellent, giving 199 moths of 23 species, including one *Orthosia miniosa* Denis and Schiff., one *Odontosia carmelita* Esp., two *Panolis flammea* Denis and Schiff., one *Chaonia ruficornis* Hufn. and one *Selene tetralunaria* Hufn. The first two were both new species to me.

The night of the 10th gave the highest total of the month with 266 moths of 19 species, but one *Polyplocia ridens* Fabr. and two *Colocasia coryli* Linn. were the only newcomers to note.

After the 11th, numbers declined generally, picking up occasionally, but never again reaching the 100 mark. After the 23rd, numbers were always below 50, reaching an all-time low on the 26th with a mere six *O. gothica*. The most noteworthy species during this period were *Cucullia chamomillae* Denis and Schiff. on the 20th and 28th; *Cucullia verbasci* Linn. on the 27th; *Harpyia furcula* Clerck on the 20th and *Notodonta trepida* Esper., *Scoliopteryx libatrix* Linn. and *Clostera curtula* Linn. on the 30th.

Three more species of butterfly were seen before the end of the month; a solitary *Erynnis tages* Linn. sipped from a dandelion on the Downs near Storrington on the 23rd, a *Lycaena phlaeas* Linn. imbibed from my wallflowers on the 30th and a male *Celastrina agiolus* Linn. was smoked from an ivy-covered tree by my vigorous garden bonfire on the 25th. This was the only one of this species seen in 1974.

The first two weeks of May were cool and unsettled, and the nights were plagued by north-easterly winds. Generally there were fewer moths around than in March and the best captures in my garden trap during this period were the first *Laothoe populi* Linn. on the 3rd; *Lobophora halterata* Hufn. on the 7th; *Anticlea derivata* Denis and Schiff. on the 8th and *Eupithecia dodoneata* Guenée on the 12th.

On the 13th I visited a corner of Arundel Park and was pleased to find a colony of *Hamearis lucina* Linn. As a northerner, it was my first acquaintance with this attractive butterfly. *E. tages* and *Pyrgus malvae* Linn. were common, and the first *Pararge megera* Linn. was noted.

On the 14th I visited Ambersham Common and saw my first Bee Hawk Moth, probably *Hemaris fuciformis* Linn. feasting on bluebell. It was quite unperturbed as I strode up with my net, but somehow it escaped and threw me "out of joint" for the rest of the day. I returned the following day and spent two hours waiting for it. It came down three times but must have recognised me for it zoomed up over the trees as soon as I moved a muscle. I had to be content with *Drepana falcataria* Linn. and *Semiothisa notata* Linn. netted nearby.

Plusia gamma Linn., possibly the first migrant of the year, appeared in my trap on the 14th. On the afternoon of the 15th I went to Rewell Wood and found several *Argynnis euphrosyne* Linn. on the wing. The night of the 15th was rather better for moths and the catch included *Acasis viretata* Hübn. and *Pseudo-boarmia punctinalis* Scop.

On the 16th, a weak front approached from the west and gave one of those rare nights when conditions are absolutely

ideal for moths. 200 moths of no less than 56 species turned up. There were no rarities but many species put in their first appearance, some of them decidedly early. The most numerous species was *Opisthograptis luteolata* Linn. Others included five *Dasychira pudibunda* Linn., four *Celama confusalis* H.-S., one *Peridroma porphyrea* Denis and Schiff., six *N. trepida* and one early *Apatele aceris* Linn.

On the 17th, pressure rose and there followed several warm, sunny days until the 21st. As the nights were cool and clear, the number of moths on the wing dropped dramatically. The only newcomers were *Smerinthus ocellata* Linn. and *Drymonia dodonea* Denis and Schiff. Butterflies were, however, much in evidence; in Arundel Park on the 20th I saw at least 16 species. In addition to good numbers of *H. lucina*, I saw many *Polyommatus icarus* Rott. and *A. cardamines*, several *Aricia agestis* Rott. and two *Callophrys rubi* Linn.

On 25th May I travelled with my family to Winsford in Somerset to stay for a few days with my wife's relatives. The moth trap was operated in their large garden at an altitude of 700 feet overlooking the steep wooded slopes of the River Exe. The season was obviously well behind compared with Sussex and many trees were not yet fully in leaf. The first night was very cool with an air temperature of 0° C. and only 22 moths of 12 species turned up. The following night was milder and 22 species were taken though there was nothing to cause excitement. *Hydriomena coerulata* Fab. was the best species and *Hadena thalassina* Denis and Schiff. was interesting because it had not yet appeared in Sussex.

The next three nights were all quite poor, the most interesting species being *Lamproteryx suffumata* Denis and Schiff., *Hada nana* Hufn., *Cucullia umbratica* Linn. and *Cerura vinula* Linn. Ten of the last named appeared on the 28th which was surprising, as I have never had more than one at M.V. before. The night of the 30th was the best with 29 species, but only two *Selenia lunaria* Denis and Schiff. were of any real interest.

Butterflies were very scarce in the area, even when it was sunny, but I did find several *Argynnis selene* Denis and Schiff. near the beauty spot of Tarr Steps.

I returned home on the 31st and set up the trap in the garden. The first *Mimas tiliae* Linn. was expected, but four *Caradrina ambigua* Denis and Schiff. were quite a surprise. Altogether 107 species of moths were taken in Sussex during May.

June 2nd was quite a good night, with 217 moths of 53 species. I was gradually beginning to realise that although most species were putting in an appearance, the actual numbers were low.

On the 3rd of June I set off for the Isle of Wight with the express purpose of finding one of our most local butterflies—*Melitaea cinxia* Linn. Providing the weather was favourable, I

did not anticipate any difficulty as its haunts are well known. I stayed with my wife's uncle at his house at Adgestone overlooking the River Yar. Naturally I had my M.V. trap with me and operated this in the garden, which had a good open aspect. The first night was clear and cool, and I considered myself lucky to take 34 species. *Agrotis exclamationis* Linn. was easily the most numerous species, but 19 *Caradrina ambigua* Denis and Schiff. put this species in second place.

A glorious sunny 4th of June found me on the undercliff at Niton where I was pleased to find *M. cinxia* quite numerous, and seemingly favouring the flowers of Bird's Foot Trefoil. All the usual butterflies were present, and the first *Vanessa atalanta* Linn. was noted. Later I explored some rather interesting ground at Bouldnor Cliff, near Yarmouth, where I took *Cosymbia annulata* Schulze. by beating the bushes. The next two nights were both cool and little of interest was taken, but a single *Arctia villica* Linn. on the 5th was the only one that I saw in 1974.

Back in Sussex again, little of interest occurred until the 11th, when 69 species turned up at the garden trap. These included *Eupithecia intricata* Zett., *H. coerulata*, and my first ever *Moma alpium* Osbeck. A second specimen of the last named species occurred on the 13th, and on the 12th I took a single *Haplotis venustula* Hübn. in the trap.

On the 8th, I took my moth trap and generator into Arundel Park. The night looked promising, but shortly after I switched on, a cold wind rushed down the hill, dashing any hopes of success. I persevered until about 1 a.m. but I have never before been so cold on a nocturnal mothing expedition. Remarkably, 32 species arrived, mainly when the wind dropped temporarily, but I doubt if there were more than 60 moths altogether. The prize constituted two *Sphinx ligustri* Linn. and one late *N. trepida*.

A more successful expedition occurred on the 15th, when I took my equipment on to the Downs near Storrington. The day had been very warm and I anticipated a good night. Moths were slow to arrive at first, but after 11 p.m. there was a steady flow of species. By 2 a.m. I had taken 77 species. The most interesting of these were *Epirrhoe galiata* Denis and Schiff., *Eupithecia subumbrata* Denis and Schiff., *Horisme vitalbata* Denis and Schiff., *Cybosia mesomella* Linn., *Melanthia procellata* Denis and Schiff., *S. ligustri*, *Deilephila porcellus* Linn., *Anaplectoides prasina* Denis and Schiff., *Agrotis denticulatus* Haw., *Pyrrhia umbra* Hufn., *Hadena lepida* Esp., *Hadena conspersa* Denis and Schiff. and a ♀ *Macrothylacia rubi* Linn.

On the 20th I travelled to East Sussex, and near the Long Man of Wilmington, searched for the small colony of *Cupido minimus* Fuessly which I had discovered the previous year. Perhaps it was rather late in the season, but I only managed to find one male. From there I went to Beachy Head, where I saw a second specimen. My main aim was to see *Procus globulariae* Hübn. which I had discovered there in 1973. On that occasion

I took a single male, but this time I was luckier in finding several of both sexes on the wing. To my surprise, I also saw one each of *Argynnis aglaia* Linn. and *Melanargia galathea* Linn. at what seemed to me to be a very early date. *Perizoma albulata* Denis and Schiff. was also a nice find.

On the 21st I saw several *A. aglaia* on the wing at Harting Down in West Sussex. On the night of the 21st I took my trap and generator to Houghton Forest and took 73 species, notable amongst which were *Agrotis clavis* Hufn., *Tethea fluctuosa* Hübn., *Lophopteryx cucullina* Denis and Schiff. and the dark form of *Hydrelia testaceata* Don. At least 12 *Stauropus fagi* Linn. also came to the trap.

The nights of 22nd and 29th June were mostly quite good and there was usually something of interest in the garden trap. *Cepphis advenaria* Hübn. occurred on the 26th and other interesting species were *Eupithecia venosata* Fab., *Polychrista moneta* Fab., *Lophopteryx cucullina* Denis and Schiff., *Apeira syringaria* Linn. and *Hadena bicolorata* Hufn. *C. ambigua* continued to occur in small numbers.

On the 30th I again went to the Downs near Storrington, but the night was much less successful and only 58 species were noted, of which *Apamea sublustis* Esp. and *Gastropacha quercifolia* Linn. were the most interesting. Altogether in June, I had noted 207 species of moths in Sussex.

On 5th July, having farmed out the children for the weekend, my wife and I set out for Beachy Head to try out the caravan in which we were hoping to tour Scotland later in the year. The car broke down at Brighton but mysteriously repaired itself when an A.A. man appeared. It was late when we arrived at Beachy Head and as a force 8 gale was blowing it seemed pointless to operate the trap. The next day the gale continued unabated, though it was clear and sunny. The only butterflies to be seen were several early *Maniola tithonus* Linn. sheltering in a hedge. As evening approached, the wind died down a little and a fairly sheltered spot was found for the trap. As soon as I switched on, the wind sprang up again, and although I stood frozen stiff for 1½ hours, not a single moth entered the trap. This is something that has never happened to me before in any month from March to November, even up in the bleak North!

The next day, the 7th, was sunny and quite warm. Butterflies abounded in the sheltered spots and *M. galathea* was abundant. *A. aglaia* was quite common and I netted a solitary *Thymelicus lineola* Ochs. As I scrambled about on the steep slopes, a moth rose up and was caught by the wind and swept some distance away. I gave chase and eventually caught it, and as I suspected, it was a male *Diacrisia sannio* Linn.—but a moth I do not usually associate with chalk downs.

(To be continued)

Inter-specific Competition

By D. G. SEVASTOPULO, F.R.E.S.*

I cannot help feeling that Dr. Shapiro (1975, *Ent. Rec.*, 87: 17) does me rather less than justice when he accuses me of parochialism and suggests that I am looking at inter-specific competition as though butterflies are unique in their competitive relationships. As one who has always considered himself as one of the few surviving general naturalists in an age of increasing specialisation (at a party organised by the International Centre of Insect Physiology and Ecology recently, I met physiologists, ecologists and geneticists, one was even a mosquito geneticist, but all disclaimed being entomologists), I have watched the ousting of the African Pied Crow (*Corvus albus* Muller) from its post of Honorary Scavenger in Mombasa by the Indian House Crow (*Corvus splendens* Vieillot). When I first arrived in Mombasa in 1948 every dustbin had its attendant one or more pairs of Pied Crow. I do not remember seeing Indian House Crows at all, and, being fresh from India, I am unlikely to have missed such a very familiar bird. Today the Pied Crow has left Mombasa Island completely and is becoming increasingly rare in the residential areas of the adjoining mainland. Again, over the last 15 years there have been major changes in the bird population of the dry bush country between Mombasa and Voi. Definite reasons can be given for both these changes, the Indian House Crow is far more prolific and has a far greater degree of low cunning than its African cousin. The changes in the dry bush country are almost certainly due to the felling of the few trees for the iniquitous export trade in charcoal, which has eliminated certain nesting sites.

Both birds and mammals have offensive weapons in their beaks, teeth and claws with which they can attack intruders into their territory, even certain insects, the Hymenoptera, for example, are known to bite the wings off intruders. The Lepidoptera, however, have no such weapons. The serrated costa of certain *Charaxes* species can do very little real damage to an adversary, and I cannot bring myself to accept the idea that mere antipathy, for want of a better term, can cause the displacement of one species by another. There must, I feel, be some definite, physical cause.

Over the past two years there has been a reversal of the relative abundance of the two most common species of Acherontine Sphingids in my garden, viz. *Acherontia atropos* L. and *Coelonia mauritii* Btlr. Both species have a number of larval food-plants in common, *mauritii* probably has more food-plants specific to itself than *atropos*, and on this score it should have the advantage, and up to two years ago it was definitely the commoner species. It is now much the rarer and I feel that the reversal in abundance is due to the exceptionally dry conditions we have had, which have had a greater adverse effect on *mauritii* than on *atropos*; possibly the more robust larva of *atropos* has less difficulty in burrowing into the sun-baked soil than that of

* C/o Reynolds & Co., P.O. Box 95026, Mombasa, Kenya.

the more slender *mauritii*, and the same applies to the emergence of the imago.

Dr. Shapiro will see from my reply to Dr. Luckens' "Cruciferae enough for all" (1974, *Ent. Rec.*, **86**:71-72), of which the publication has been delayed by the *Record's* printing troubles, that I do not agree with his concept, and I still maintain that a careful examination of all factors would almost certainly provide a clue to the change in the Argynnid population of Dr. Luckens' wood, which started the argument, and also the increase in the introduced *Papilio andaemon* Hübn. at the expense of other *Papilio* species in Jamaica.

It will be interesting to see what effect the recent colonisation of Australia by *Danaus plexippus* L. has on the indigenous *Danaus* species.

Notes and Observations

CALAMOTROPHA PALUDELLA HUBNER (LEP.: PYRALIDAE) IN SURREY. — On 17th-18th July I had in my light trap an example of this species: I nearly missed it because, with its forewings folded tightly over its pure white hindwings, it was exactly the same colour as the egg tray on which it rested. I know of no published record of this very local marsh species in Surrey, but Mr. J. L. Messenger kindly allows me to record now his capture of one near the Thames at Weybridge on 6th July 1952. Any further news of the species in Surrey would be welcome; it could be easily overlooked as the Wainscot *Chilodes maritimus* Tauscher. The larva is known to feed and to pupate in stems of the bulrush, of which there are scattered patches in ponds and in a disused canal near my house; but I have still to locate it. — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Guildford, Surrey GU5 0LE, 9.8.75.

ANOTHER HEMARIS FUCIFORMIS LINN. IN HANTS. — I reported the occurrence of *H. fuciformis* at Linwood, Hants. in 1972 and 1973 (*Ent. Rec.*, **85**: 203). *The Butterflies and Moths of Hampshire and the Isle of Wight* (Goater, 1974) records that this species was "formerly common to very common in the New Forest rides, etc." but that a decline began in the 1940s and the only other record received was from Appleslade (which is only a mile from Linwood) in 1953. I am happy to report that on 12th July 1975, Mr. Adrian Butterworth showed me a half-grown larva which was found on honeysuckle in his garden at Brockenhurst. Is it too much to hope that this rarity is still around elsewhere in the Forest? — L. W. SIGGS, Sungate, Football Green, Minstead, Lyndhurst, Hants.

A SECOND BROOD OF CUPIDO MINIMUS FUESSLY IN 1975. — A second brood of the Small Blue has been in flight here in East Sussex during the latter days of July. First noted on 26th July, the butterflies are in good numbers and quite full sized. — COLIN PRATT, Oleander, 5 View Road, Peacehaven, Newhaven, Sussex, 3.viii.1975.

AUTOGRAPHIA BRACTEA D. & S. (LEP.: NOCTUIDAE) IN WORCESTERSHIRE. — The recent southward spread of this species has been well chronicled, but I was interested to find on 30th/31st July a worn male in the light trap, which I was running in my son's garden at Blackwell, near Bromsgrove. This seems to mark a considerable further extension of its known territory in the Midlands. — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Guildford, Surrey GU5 0LE, 9.8.75.

AN EARLY DATE FOR LEPTIDEA SINAPIS LINN. IN 1975. — I was surprised to find a specimen of the Wood White on 4th May, 1975 in its well-known area on the Sussex-Surrey border, but on a further visit in fairly good conditions on 23rd May no further examples were seen, though I have heard of a number being observed in this region on 28th May. — C. G. M. DE WORMS, Three Oaks, Woking.

PANOLIS FLAMMEA D. & S. (PINIPERDA PANZ.): AN EARLY DATE AND LONG PERIOD OF EMERGENCE. — I was surprised to find a Pine Beauty in my m.v. trap here on 17th February, and on 27th May another one that was still fresh, thus denoting an emergence period of over three months. — C. G. M. DE WORMS, Three Oaks, Woking, 30.v.1975.

LOBOPHORA HALTERATA HUFN. F. ZONATA THUNBERG AT WOKING. — That pretty little geometer, the Seraphim, is an infrequent visitor to my m.v. trap, but on 9th May, 1975 I was surprised to see an extreme example in the male of this form f. *zonata* in which the central area of the forewings is very ochreous without a trace of the normal dark speckling. I have had recourse to view the series of the Rothschild-Cockayne-Kettlewell collection in the Natural History Museum to find that this variety is much more prevalent in specimens from Perthshire, especially in the female. In fact there were only some four males of this form from those northerly parts and I could find none of this sex from England. So that I thought the record of it in Surrey worth mentioning in the hope that others will be found from southern England. — C. G. M. DE WORMS, Three Oaks, Woking.

STENEPTERYX HIRUNDINIS (L.) ON JUVENILE HOUSE MARTIN. — Referring to S. N. A. Jacob's recent note (*Ent. Rec.*, 1975, 87: 26-27) on *Stenepteryx hirundinis* (L.) on juvenile House Martin (*Delichon urbica* (L.)) in which he suggests these flies might have a narcotic effect via the blood stream—I am not aware of any evidence to support this possibility.

It is difficult to decide whether hippoboscids or other types of ectoparasites are responsible for the weakened condition of birds or they have simply taken advantage of it. The host is the greatest enemy of the parasite. Data available show, in spite of the blood loss, whole broods are successfully reared. Instances of populations of these flies, varying between 2 or 3 to 100 plus in single nests are known. — GORDON B. THOMPSON, 56 Beaumont Road, Cambridge CB1 4PY.

Current Literature

The Locust by **Robert Barass**. Second Edition. 72 pp., 28 figs.
Barry Shurlock & Co. Ltd. 1974. £1.50.

A dissection and experimental guide to the migratory locust should contain the means by which a student can relate the morphology, behaviour and physiology of the laboratory animal to the needs and habits of the organism in the wild. *Locusta* is a very variable, very complex insect and to produce a short manual for secondary schools, which incorporates practical work within the scope of the average timetable is a daunting task. Unfortunately Dr. Barass has only partly succeeded in this aim.

The book contains sections on field biology, breeding, dissection, anatomical preparation and experimentation. A reference section, as background to the text, is given at the end of the work, but this could usefully have been augmented by extra reading for the Teacher. The text, for example, nowhere states that migration is normal for the solitary locust, but it is this fact which explains so much of the insect's biological adaptation. Nor do populations of *Locusta* remain the same from generation to generation in a particular area. Works by Davey (1959), Descamps (1961) and Farrow (in preparation) on field biology would be of value here to the keen teacher. The kind of results to be obtained from experimental work should have an explanatory section to help teacher and student alike. Simple school facilities often do not allow control of daylength, temperature and food quality, etc., with any accuracy. These difficulties, underlying what may turn out to be bewildering and unexpected results, need extra explanation.

Presentation is best in the dissection sections but weak in the "experimental" sections. Good references leads, however, are given as background to the latter. Diagrams are disappointing. There is an air of uncertainty in some of the anatomical drawings and for complex dissections, like the neuro-endocrine system of the head, serial drawings showing various stages in the dissection are the only way to make this possible for 6th formers. Dissection under invertebrate saline is infinitely more entertaining than under water, since the tissues remain alive much longer, especially if the saline is kept cool. Albrecht (1953) is mentioned as a text in the references and should help to augment the diagrams in this book. The weak chromosome section uses *Chorthippus brunneus* instead of *Locusta* as the example. It would have been improved if the meiotic sequence in *Locusta* had been illustrated after the example of Lewis & John (1964).

An important fault is the general lack of clearly posed questions as a preliminary to experimental work, while the important distinction between experiment and exercise is not made. — Nicholas D. Jago.

EXCHANGES AND WANTS

For Sale.—Separates of "Emmet's Notes on some of the British Nepticulidae". Price 35p per copy. Printed covers for the collection of 5 parts.—Apply to *S. N. A. Jacobs*, 54 Hayes Lane, Bromley, BR2 9EE, Kent.

Back numbers.—Our supplies of certain back numbers are now a little reduced and we would be willing to buy in a few copies of Vols.: 75, 77, 79, 82 and 83 at subscription rates. Due to an error there are now no further stocks of the January 1973 issue, we would therefore be indebted to anyone who could part with this issue.—*S. N. A. Jacobs*, 54 Hayes Lane, Bromley, Kent.

Wanted. — HYDROPTILIDAE (Trichoptera) Specimens or data from any part of the British Isles. Identification will be provided, if required by the sender. Material to:— Miss J. E. Marshall, Entomological Dept., Natural History Museum, Cromwell Road, South Kensington, London.

Wanted During 1975. — Livestock (ova, larvae or pupa) of *Colias croceus* (Clouded Yellow) and *C. Hyale* (Pale Clouded Yellow).—Please write stating quantity, price, and place of origin, to: D. J. Tolhurst, 13 Armytage Close, Hoo, Rochester, Kent, ME3 9AP.

Wanted — for research purposes — parasitic Hymenoptera reared from identified Lepidopterous and other hosts. If you are willing to help and would like further details, please write to — Dr. M. R. Shaw, Dept. of Zoology, University of Manchester, Manchester 13.

Change of address: Mr. S. Walely, 23 Hinton Road, Carisbrook, Isle of Wight.

Mr. T. W. Harman has been appointed Warden of Canterbury Field Studies Centre and Nature Reserve, and his address is now "**Little Oaks**", Church Lane, Westbere, Canterbury, Kent. Telephone 710282. Entomologists visiting the area are welcome to call at any time.

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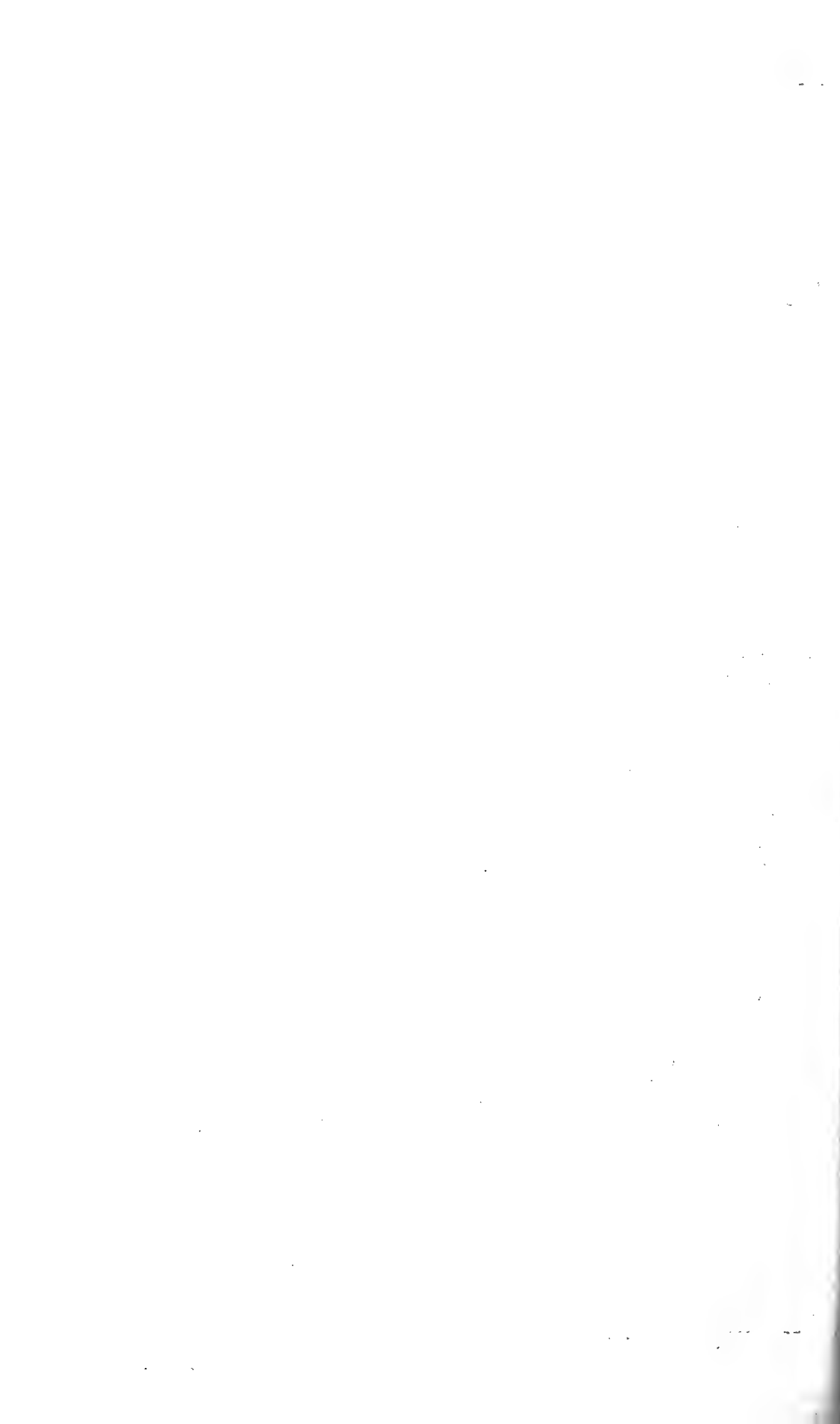
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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by J. M. CHALMERS-HUNT, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

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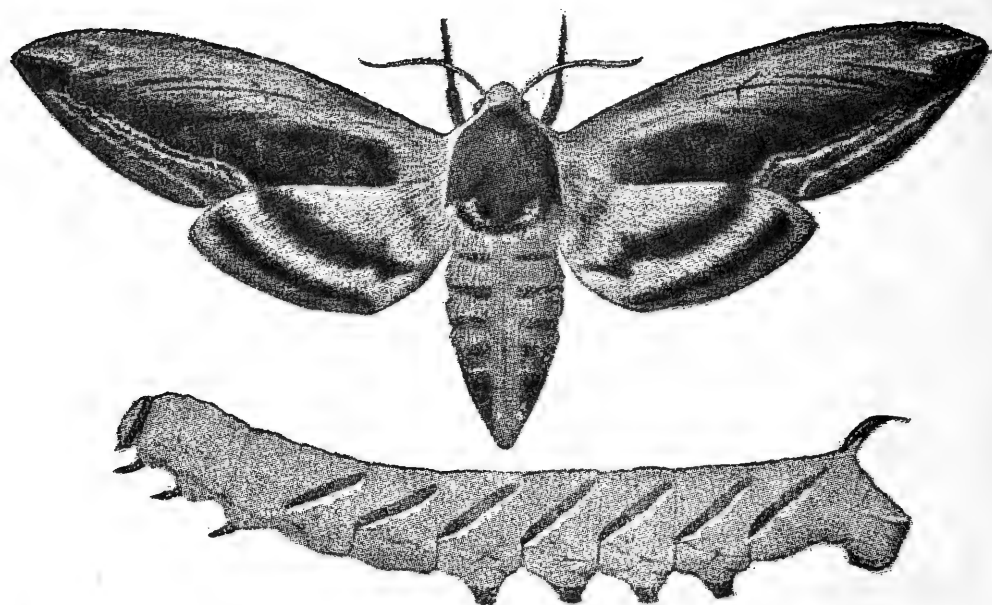
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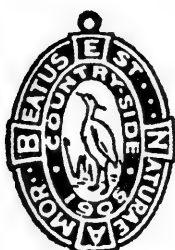
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Inflation is a word that has been used constantly over the last few months, and unfortunately it has had its effect on this magazine with rising printing and postage costs. Inevitably the subscription for 1976 must increase if we are to continue publication. It is with regret, therefore, that as from the 1st of January the subscription will be £6.50. It would seem pertinent to mention at this point that the journal is a non-profit making concern, all those concerned in the production give their services and time free of any reward other than the satisfaction of producing a readable journal.

In the past considerable time and costs have been expended on chasing late or non-payers, and so to obviate this wastage, it has been decided that subscriptions must be received before the 15th of January, and non-receipt will mean the journal will not be sent as hitherto, as many copies have been lost this way. My particular job would be made much easier if subscribers would use banker's orders and to facilitate this a form is enclosed which I hope as many as possible of you will utilise. Lastly, I request the courtesy of those who do not intend to renew their subscription to advise me before the 31st of December.

Aberrations of *Diacrisia sannio* Hübner
(Lep.: Arctiidae)

By R. W. WATSON, F.A.I.A., F.B.A.A., F.C.I.S., F.F.A.A.,
F.Comm.A.; F.R.E.S.*

Diacrisia sannio ab. **russwurmi** ab. nov.

Forewings: pale ochre yellow, fringes and discoidal rosy. Hindwings: cream with fringes rosy; discoidal only just visible, borders absent. No black scaling on either fore or hindwings.

Holotype ♂: Taken by A. D. A. Russwurm, Fritham, New Forest, Hants., vii.1960. Watson coll. (Plt. X, fig. 1).

Diacrisia sannio ab. *deleta* Delahaye, *Suppl. Cat. Lep. Maine-et-Loire*, p. 19.

Taken at Delamere, 1892. H. W. Milne, Watson coll. (Plt. X, fig. 3).

Original description: "Forewings with two inner marginal strips entirely red, lacking the normal black dusting. Hindwings without black bordering."

Diacrisia sannio ab. *rubescens* Gerhard, *Et. Wien Ent. Ges.*, 1953, **38**: 305.

Bred 9th June, 1969 by R. B. Watson from a larva collected by her at Rannoch, Perthshire. Watson coll. (Plt. X, fig. 4).

Original description: ♂, "Forewings with the cell-spot red without any of the normal black and the margins show an increase of red dusting coupled with reduced black scaling." Hindwings typical.

Diacrisia sannio ab. *immarginata* Niepelt, *Int. Ent. Z.*, 1908, **2**: 181.

New Forest, July 1896. Watson coll. (Plt. X, fig. 2).

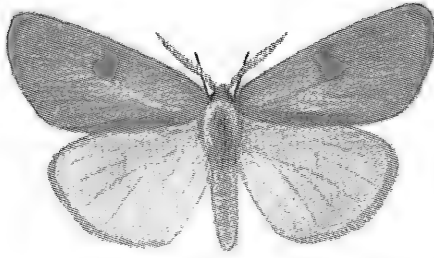
Original description: "On the hindwings the black outer marginal band fails completely and the central spot is either completely absent or only weakly marked."

Acknowledgements

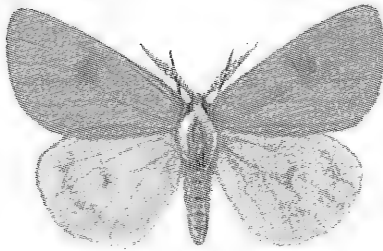
The author again expresses his appreciation to A. D. A. Russwurm for once more producing a fine result. Also to the Trustees of the British Museum (Nat. Hist.) for access to the National collection for comparison of the specimens and for original descriptions.

*Porcorum, Sandy Down, Boldre, Lymington, Hants.

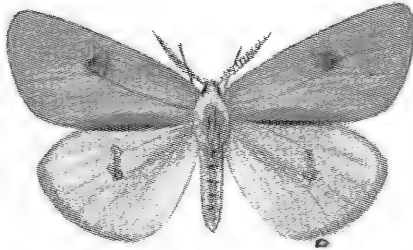
MYTHIMNA VITELLINA HUBN. AND MEGANOLA ALBULA D. & S. IN SURREY, 1975. — On 1st June this year I took a slightly worn specimen of the Delicate (*M. vitellina* Hüb.); four *Autographa gamma* L. were also present but no other obvious migrants. On 10th July, I took a single specimen of the Kent Black Arches (*M. albula* D. & S.). All the above were in the m.v. trap situated in the garden of my house on Ranmore Common. — M. GREY, Dairy Cottages, Ranmore Common, Dorking, Surrey, RH5 6SP.



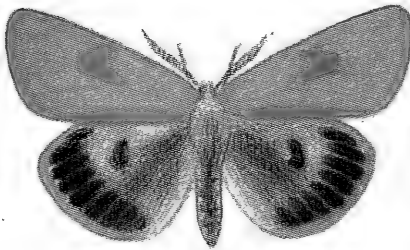
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From the original water colour drawing by A. D. A. Russwurm

Aberrations of *Diacrisia sannio* Hübner.

1. ab. *russwurmi* Watson ♂.

2. ab. *immarginata* Niepelt ♂.

3. ab. *deleta* Delahaye ♂.

4. ab. *rubescens* Gerhard ♂.

Coleophora fuscicornis Zeller, 1847 (Lepidoptera: Coleophoridae), a Species New to Britain, with an Account of its Life Cycle

By A. M. EMMET¹ and R. W. J. UFFEN²

Summary

Coleophora fuscicornis Zell. is added to the British List from Essex. The moth is described and its genitalia are figured and compared with *C. trifolii* Curt. The larva is shown to make its case from a seedpod of *Vicia tetrasperma* (L.) Schreb. The larva is compared with that of *C. trifolii*.

Discovery and determination

by A. M. EMMET

On the 26th of May, 1973, I paid a visit to the Essex Naturalists' Trust reserve at Fingringhoe Wick for the purpose of recording microlepidoptera. On a patch of rather sparsely vegetated ground I netted a large Coleophorid, then to find that I had unwittingly secured two specimens at the single stroke. At first sight they appeared to be *Coleophora trifolii* Curtis (*frischella* sensu auct.) and I was about to release them, when two considerations made me change my mind: first, it was a month too early for *trifolii*, and secondly, there was no sign of its foodplant, melilot; so I took the two moths home, after noticing that there were others flying in the same area.

A comparison between the two moths and the *trifolii* in my cabinet quickly showed that they were distinct. The apical area of the forewings almost completely lacked the bronzy reflections so conspicuous in *trifolii*, the antennae did not have pale tips and the eye was fringed posteriorly with orange scales. The new moth also seemed to be marginally bigger.

I therefore invited Mr Raymond Uffen, a leading authority on the Coleophoridae, to pay a visit and give an opinion on what appeared to me to be a species new to Britain. He agreed that the species was new. Both the moths were males and a genitalia preparation made from one of them showed further that it was a species not figured by Toll (1953 and 1962).

On the next day (the 2nd of June), we went to Fingringhoe Wick to study the species in the field, and found a number of specimens flying in the sunshine over the same patch of ground. We observed their movements carefully, hoping to get an indication of the foodplant. This we expected to be one of the Papilionaceae, in conformity with the feeding habits of the group to which the new species appeared to belong. We noticed that there was plenty of bird's-foot trefoil (*Lotus corniculatus* Linn.) and narrow-leaved vetch (*Vicia angustifolia* Linn.) in the vicinity and that it was the latter which seemed to be of more interest to the moths. We also captured a few moths, but were careful not to take too many of what was possibly a rare species.

¹ Labrey Cottage, Victoria Gardens, Saffron Walden, Essex.

² 6 Staddles, Dell Lane, Little Hallingbury, near Bishops Stortford, Herts. CM22 7SW.

My next task was to visit the British Museum (Natural History) and to try to identify the moth. Dr J. D. Bradley gave his assistance and we found it to be *Coleophora fuscicornis* Zeller. A male genitalia preparation made from a continental specimen was already available and a comparison between this and Mr Uffen's slide of the Fingringhoe moth placed the determination beyond doubt. We further ascertained that *fuscicornis* has a predominantly Mediterranean distribution extending from Spain to Israel. The type male was taken at Carajasu, Asia Minor, in a high mountain valley on 11th April, 1842. Lhomme (1951) gives five French localities: La Grave, Hautes-Alpes (P. Chrétien); Crus, Ardeche (P. Chrétien); Ronce-les-Bains, Charente-Maritime (Lhomme, det. P. Chrétien); Nohant, Indre (Sand); Cabrerets, Lot (P. Chrétien); Douelle, Lot (Lhomme)—all 400 miles or more south of Fingringhoe. The life history of *C. fuscicornis* was still unknown.

Here was a challenge. Accordingly on the 4th July I returned to Fingringhoe Wick and on the very first plant of what I thought was *Vicia angustifolia*, literally within seconds, I found what I was looking for—the larval case of *fuscicornis*.

The larva starts by eating out the contents of a small seedpod less than half an inch long. It then severs the pod from the plant and uses it as a portable case without further visible embellishment. It fastens the case to a second pod, usually at the tip and in alignment with it. Then, using the case as a basis of operations, it enters the new pod and devours its seeds. If, as is likely, its growth is then still not complete, it repeats the process with a third or fourth pod. All this time, the case is turning yellow-brown, but the ripening pods to which it is attached are bright green. This contrast in colour betrays the presence of the case: what one sees is a brown pod "growing" out of a green one. A description of the larva and a more detailed account of the case will be found in the section contributed by Raymond Uffen. As soon as I had learnt what to look for, I readily found as many cases as I needed. Some of these I took to Mr Uffen. The remainder I had to leave potted up in the garden and unobserved, as two days later I crossed to Ireland. On my return I found that a cat must have walked on the nylon cover of the pot, rupturing it, and all the living cases had walked away. I was glad enough to find that there were three cases containing dead larvae for study.

As time passed, Raymond Uffen had second thoughts about the identity of the foodplant. The larva of *fuscicornis* can utilise only a relatively small pod as its portable case, and those of *angustifolia*, even in its var. *bobartii* (E. Forst.) Koch (now known as *V. angustifolia* ssp. *angustifolia*) are clearly too big. We therefore consulted Mr Stewart Linsell, the warden of Fingringhoe Wick, about the vetches of his reserve, and he put us in touch with Mr H. J. Killick, who is an authority on the family. Fortunately Uffen still had some of the original feeding material available for Mr Killick to examine, and he pronounced that it consisted of a mixture of *Vicia angustifolia* and the smooth

tare (*V. tetrasperma* (L.) Schreb.); it was on the seeds of the latter that the larvae had been feeding. Furthermore, the distribution abroad of *tetrasperma* corresponded very well with that of *Coleophora fuscicornis*. It is easy to see how we made our mistake: we had failed to appreciate that there were two vetches growing together, and had made a correct determination, but of the wrong half of the material. In retrospect, I realise that even without that cat's interference I would have failed to rear *fuscicornis*, since I had selected large pods to sate the larval appetite during my absence! However, Mr J. M. Chalmers-Hunt has since reared a single male *fuscicornis* on 3rd June 1975; also a hymenopterous parasite (Chalmers-Hunt, 1975).

The moth was again observed on the wing in late May and early June 1974 and its cases were found once more in early July. There is no doubt that it is well established at Fingringhoe Wick. It must, however, be pointed out that collecting on the reserve, which has a resident warden, is not allowed without a written permit and normally this is granted only for the purpose of recording species. Those who wish to add *fuscicornis* to their collections are advised to search for it on similar terrain in the neighbouring part of Essex, or indeed in any place where *Vicia tetrasperma* grows plentifully. Jermyn (1974) describes the plant as widespread throughout the county.

In conclusion I would like to thank the officers of the Essex Naturalists' Trust (of which I am a member), for letting me have a permit to make records on their reserves and for allowing me to reveal the name of the first British locality for *Coleophora fuscicornis*. At the same time I extend my thanks to the warden of the reserve for his help and to Mr H. J. Killick and Dr J. D. Bradley for their part in determining the foodplant and the moth. Three specimens have been placed in the National Collection at the British Museum (Natural History).

Description of case, larva and imago

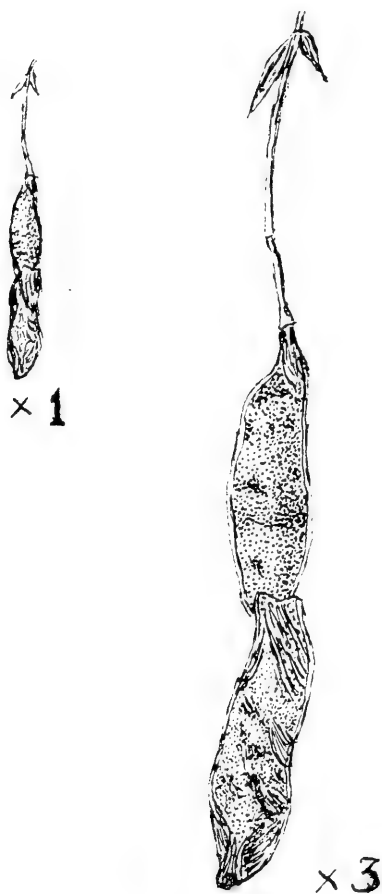
by R. W. J. UFFEN

Maitland Emmet has already described how we overlooked the insignificantly-flowered *Vicia tetrasperma*, the true foodplant, when the moths were on the wing and only much later, after I realised that the pods upon which the larvae had been feeding did not fit those of *V. angustifolia*, the conspicuous species in flower, did Mr Killick kindly set our botany to rights. The other vetches available at Fingringhoe were all in the wrong state of development for the larvae to feed on them.

The larva of *C. fuscicornis* consumes the green seed in one pod, voiding its frass through a slit in the distal end, then cuts the pod from its stalk and uses it as a portable dwelling which is attached to the side, or more commonly the end, of another pod. The seeds in the second pod are consumed rather little if they are already ripening, and the larva moves on to another pod. If the seeds are still green, they are consumed completely and a certain amount of frass, with very little silk, is left behind.

More pods may be attacked, according to the success of the attack on the seeds within each. Seedpods at Fingringhoe are 10-12 mm. long and contain up to four seeds.

We are indebted to Mr S. N. A. Jacobs for the accompanying drawing of cases in their characteristic situation (fig. 1).



Coleophora fuscicornis Zeller.

Essex, J. M. Chalmers-Hunt leg. 9.vii.1974 del. S.N.A.J. 16.viii.1975.

Fig. 1. Case of *Coleophora fuscicornis* on *Vicia tetrasperma*.

Cases examined in January had been lined with a thick, brown felt of reinforced silk having three valves about 2.5 mm. inside the slit end of the pod. There was a thin lining of smooth, white silk within the tough brown layer. The oral end had by this time been fashioned into a circular opening and plugged with a loose felt of brown silk. The larvae were facing the valves ready for pupation.

Old pods were examined to determine details of the feeding. In one that had probably been destined to become a case, a minute head capsule, deemed to be of the first instar, was found, but lost before it could be measured. Head capsules of two further instars were readily to be found in or around partly-emptied pods. These are 0.34-0.36 mm. wide and 0.5-0.6 mm.

wide. Mature larvae have heads 0.7-0.8 mm. wide. It thus appears that there are four instars, as with other *Coleophora* species that have been subjected to close scrutiny, and that the first moult takes place within the pod that becomes the case.

Coleophorid larvae are case-bearers, so that the whole weight of the animal and its dwelling is borne by the thoracic legs. In addition to the usual prothoracic shield, there are other reinforced, pigmented sclerites on the dorsum and around the spiracular area of the mesothorax and sometimes the metathorax of these larvae. *C. fuscicornis* belongs to that large part of the genus *Coleophora* in which the dorsal metathoracic sclerites form a pair of spots on each side of the midline. The anterior dorsal lobes are always well separated, but the posterior lobe is continuous across the midline, but bears two triangular spots with their bases facing each other. Amongst these insects in the British fauna, the *trifolii* group is distinguished by having locally two different densities of pigment on the prothoracic shield. The shield is light brown (its anterior margin may be almost unpigmented), with a posterior band or pair of spots of blackish-brown on each side, which is also the colour of the other thoracic markings (fig. 2).

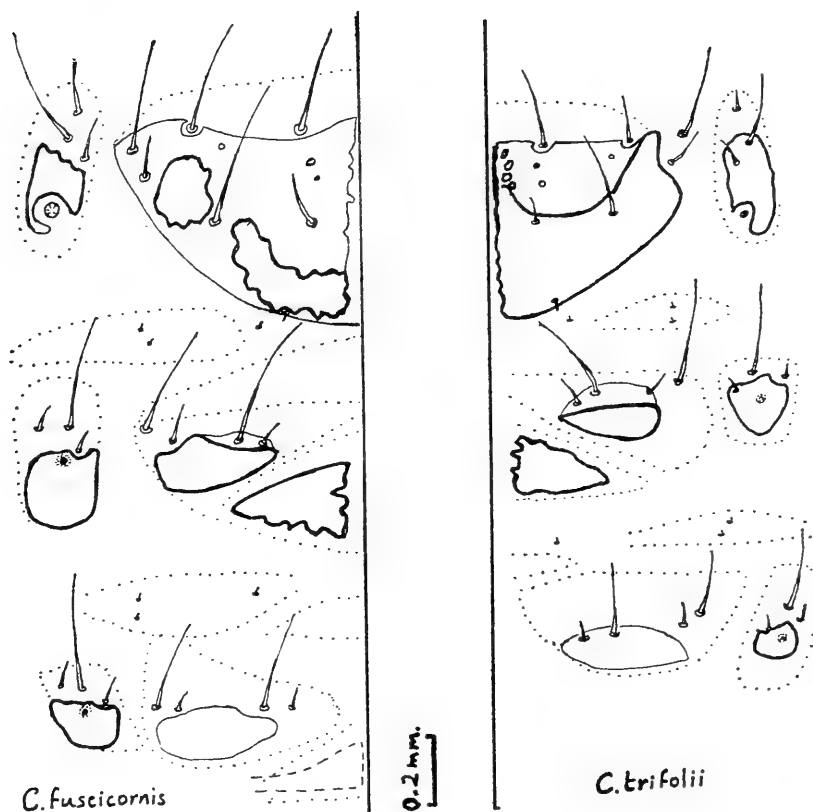


Fig. 2. Left side of thorax of *C. fuscicornis* and right side of thorax of *C. trifolii* larva. Heavy lines denote areas of dark brown pigmentations. Dotted lines indicate folds of the cuticle. Spiracular scars are visible on the meso- and metathoracic segments.

C. trifolii Curtis larvae have a continuous dark band along each side of the hind margin of the shield, whilst *C. fuscicornis* larvae have two spots on each half of the hind margin. The four abdominal prolegs of one side total a mean of 42 crochets between them in *C. trifolii* (5 larvae) and 55 in *C. fuscicornis* (4 larvae), but as the range was from 39-49 in *trifolii* and 43-70 in *fuscicornis* not every larva can be distinguished by its feet.

Comparison with the clover-feeding members of the group, *C. spissicornis* Haw. and *C. deauratella* Lienig & Zell. are to be found in a further paper by R.W.J.U.

Imago

Male: wingspan 17-19 mm. Head and thorax dark bronzy fuscous. Antennae with scape rough-scaled beneath. Labial palpi with second joint thickened with scales, terminal joint as long as second. A fringe of orange scales behind and below the eye. Forewings shining bronzy grey-green with faint coppery reflections; cilia concolorous with the wing, shading to grey on the tornus. Hindwings and cilia grey. The male genitalia are characterised by a long, J-shaped, spurred seta of unusually large diameter, but thin wall, projecting from the costa mid-way between the tegumen and the base of the clasper (fig. 3).

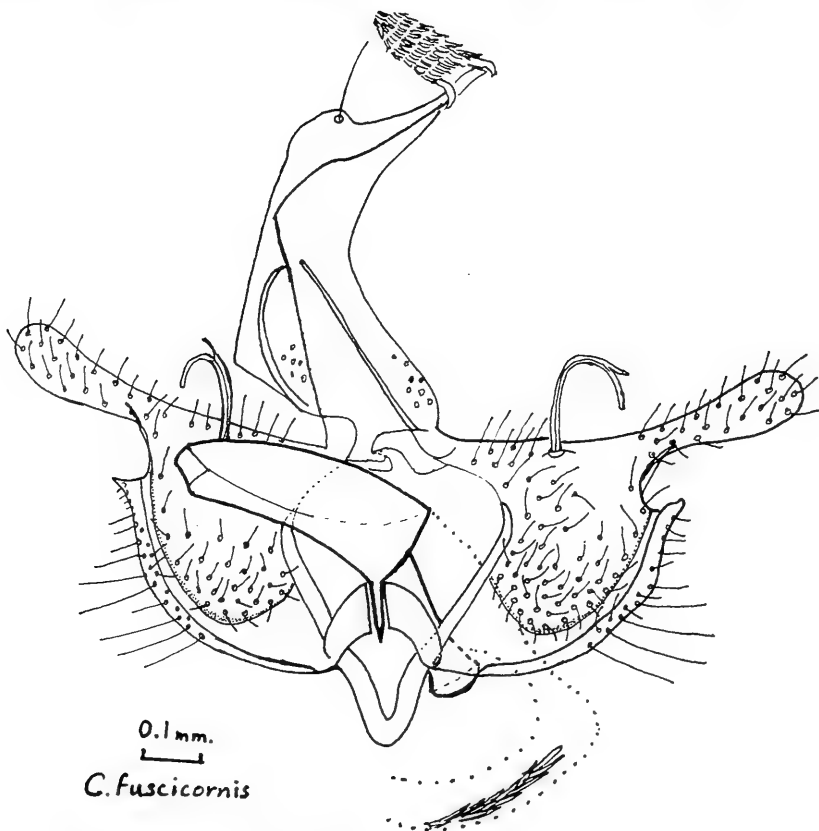


Fig. 3. Male genitalia of *C. fuscicornis*.

Female: wingspan 14-15 mm. Antennae with base of flagellum somewhat thickened with dark bronzy scales. Hindwings rather dark grey, otherwise as male. Tergite 8 bears a central T-shaped

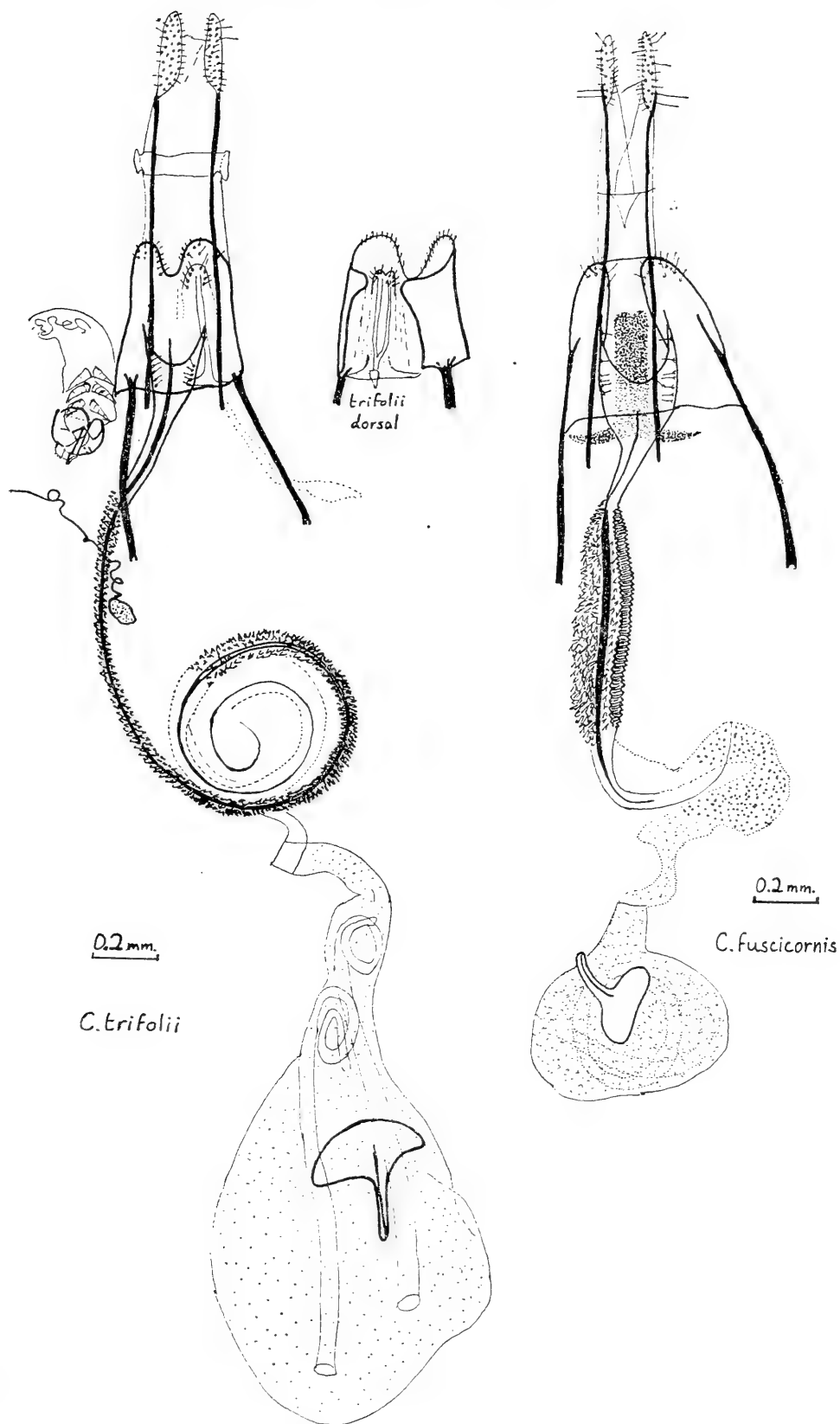


Fig. 4. Female genitalia of *C. trifolii* (left, with dorsal view of 8th segment at inset) and *C. fuscicornis* (right).

sclerite. It is broad and without setae, whereas that in *C. trifolii* is narrow and furnished with apical setae (fig. 4). The narrow lobes on the last abdominal segment and the zone of rough cuticle in the ductus bursae near the corpus bursae are reminiscent of those in *C. deauratella*, but the signum has broad wings as in *C. trifolii*.

The female *trifolii* figured for comparison had laid all but one or two of its eggs and still retained the remains of apparently two spermatophores in its bursa copulatrix. As the drawing shows, a fully developed larva was found in the oviduct near the base of the ovipositor. Whilst larviparous coleophorids are known, this appears only to be a case of an old egg fertilised but retained by a female that had completed laying eggs and must have lived for some time afterwards.

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EREBIA SEROTINA DESCIMON & DE LESSE 1953: A POSSIBLE HYBRID. — In 1967, on leaving Cauterets in the Pyrenees on 25th September after our third fruitless attempt to find *Erebia serotina*, my wife and I made an observation that is relevant to its taxonomic status, and should have been put on record earlier. On the Col d'Aubisque, a few hundred yards before the beginning of the descent to Les Eaux Bonnes, I noticed a solitary *Erebia* in flight. A long chase led to its capture and the surprise that it was a rather worn male *Erebia epiphron*, long past its normal flight time. No more were seen; but about two hundred yards further on, in a rather damp hollow by the roadside, we came across a colony of *Erebia pronoe*, mostly rather worn and mostly females. In the latest French edition of the *Field Guide to the Butterflies of Europe* M. Rougeot makes the suggestion that *E. serotina* could be a hybrid between these two species, a suggestion hitherto discounted because of the normally wide separation of their flight periods. That cross pairings could occur is indicated by this single observation. Such occurrences would be facilitated by the fact that the two species occupy the same habitat at the same elevation. The fact that all the specimens so far obtained are males also strongly suggests their hybrid origin. — N. D. RILEY, c/o Dept. of Entomology, British Museum (N.H.) London, S.W.7.

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New Aberrations of *Tyria jacobaeae* L.

1, 2. ab. *unicolor* Watson.

3, 4. ab. *luteasuffusa* Watson.

New Aberrations of *Tyria jacobaeae* L. (Lep.: Arctiidae)

By R. W. WATSON, F.A.I.A., F.B.A.A., F.C.I.S., F.F.A.A.,
F.Comm.A.; F.R.E.S.*

Tyria jacobaeae ab. **unicolor** ab. nov.

Fore and hindwings: Crimson with no distinction between the costal streak and spots. Thorax and abdomen of the same shade of crimson.

Holotype ♂: Bred 8th June, 1973. Watson coll. (Plt. XI, fig. 2). From original *coneyi* stock (cf. Watson, *Ent. Rec.*, **79**: 33-35, **80**: 181-184, **84**: 11-12).

Paratype ♂: Bred 10th June, 1972. Watson coll. (Plt. XI, fig. 1). From original *coneyi* stock (cf. Watson, *loc. cit.*).

Tyria jacobaeae ab. **luteasuffusa** ab. nov.

Fore and hindwings typical except for a light suffusion of chrome yellow scales on forewing and costa of hindwing. This is not the yellow already present in this strain (*flavarosea* Watson) but resembles the colour of *flavescens* Thierry-Mieg.

Holotype ♂: Bred 13th June, 1973. Watson coll. (Plt. , fig.). From original *coneyi* stock (cf. Watson, *loc. cit.*).

Paratype ♂: Bred 14th June, 1973. Watson coll. From original *coneyi* stock (cf. Watson, *loc. cit.*).

I express my thanks to A. D. A. Russworm for his excellent water colours.

*Porcorum, Sandy Down, Boldre, Lymington, Hants.

BREEDING COLEOPHORA FUSCICORNIS ZELLER. — On 9th July, 1974, I collected a few larvae of this extremely local moth, the case of which is formed from a seed-pod of its foodplant. This was at Fingringhoe Nature Reserve, Essex, where in May 1973 Col. A. M. Emmet discovered the insect as new to Britain, and where in July that year he also discovered the larva for the first time and later confirmed identification of the foodplant as that of the smooth tare (*Vicia tetrasperma* (L.) Schreb.).

I hibernated the cases in a cloth bag hung up in my garden on a wooden fence facing south-west. In mid-May 1975, I brought them indoors and put them into a plastic box covered with a piece of nylon stocking, and from time to time lightly sprayed them with water from a syringe. On 3rd June, I noticed at about 9 p.m. that a male *fuscicornis* had freshly emerged and was drying its wings. I bred no more moths, but a few days later a hymenopterous parasite (awaiting determination) emerged from a circular hole near the top of one of the cases.

I should like to take this opportunity to acknowledge with thanks, permission to enter and collect in the Fingringhoe Reserve kindly granted me by the Essex Naturalists' Trust. — J. M. CHALMERS-HUNT.

The Black Larva of *Abraxas grossulariata* L.

By H. C. HUGGINS, F.R.E.S.

Mr M. L. Street's article on Melanism in the larvae of *Abraxas grossulariata* L. (*Ent. Rec.*, **87**: 97) was most interesting, but this melanism is not confined to industrial or urban districts.

When I was collecting in late April and early May 1915 on Inishmore, the Aran Islands, in the Atlantic at the mouth of Galway Bay, I found a number of almost completely black larvae, together with normal ones. They were feeding on blackthorn on the limestone slabs just above the limit of cultivation, about 200 feet above sea-level. There the blackthorn creeps almost like a rockrose over the slabs, owing to the Atlantic gales.

I brought home about a dozen of these larvae and bred out ten moths, which I still have, and most luckily preserved one of the larvae, which is still in my collection. It is very much blacker than the black one figured on plate III, figure 2, in Mr Street's paper. The head and first segment are of normal colouration, otherwise it is entirely black except for two minute spots, much smaller than a pin-head, on segments 4, 5 and 6. These black larvae were accompanied by a number of the normal colour. I do not remember any intermediates.

The pupae were normal and the perfect insects rather disappointing, though well worth keeping. They are not in the least melanic, but in most of them the orange band on the fore-wings is more brilliant and wider than in any wild specimens I have seen in other localities. I briefly recorded them in an article on the Aran Islands which appeared in the *Entomologist* for 1928, p. 43. They are also mentioned in Baynes, *Supplement to a Revised Catalogue of Irish Macrolepidoptera*, p. 18.

There is of course no industrialisation in the Aran Islands nearer than the United States or Dublin. There was not even household fuel in my time except for a lighter load of coal and turf brought over occasionally from Galway. I intended revisiting Inishmore ten years ago, but a friend who had been there the year before told me the island had been so altered by tourism that I decided not to go.

* 65, Eastwood Boulevard, Westcliffe-on-Sea, Essex.

When I was there in 1915, the little St. Ronan's Hotel run by Miss O'Flaherty was the only accommodation. It had only four guest rooms at the time of my stay. Two of these were permanently occupied by priests, Fathers Eaton and O'Flaherty, and the third by the representative of the Congested Districts Board, Mr Gallagher, so I was lucky to get in. The only conveyance was one donkey-cart, all else had to be pushed on barrows or carried in panniers.

I am told today that there are a dozen "jaunting-cars" there, simply for visitors. When I first visited Ireland over 60 years ago I never heard this name except at Killarney, everywhere else they were called side-cars or outside-cars. Killarney was ever the seat of this sort of stuff; in those days visitors were shown the Colleen Bawn's Rock, although that unfortunate girl was never within 70 miles of the place.

Two Species of *Anaspis* (Col.: Mordellidae₁) New to Britain; with a Consideration of the Status of *A. hudsoni* Donis., etc.

By A. A. ALLEN²

1. *Anaspis bohémica* Schilsky, 1899, *Käf. Eur.*, **35**: 88 (= *forticornis* Schil., *norvegica* Munst.)—A black species, one of a small group of *Anaspis* s.str. in which the primary ventral appendages of the male are borne by the 2nd instead of the 3rd sternite; the only other British species being the very different *A. lurida* Steph. As will be evident from the key (section 3), *A. bohémica* differs from any of its British allies in a number of definite features, of which—apart from those peculiar to the male—one of the best lies in the strongly elongate terminal segment of the antennae (which are stout for the size of the beetle). The pronotum is more transverse than in our other species, whilst in the male the anterior tarsi and the ventral appendages are highly characteristic, the latter not only in the above-mentioned respect but also in forming an inverted Y-shaped structure. Hansen (1958: 219) contrasts the species with the larger and common *A. frontalis* L., which is done here too in the key that follows—though the two are not really closely related. In general facies *bohémica* perhaps more resembles a small melanoid *rufilabris* Gyll. and indeed has more than once been mistaken for *hudsoni* Donis. (*q.v. infra*); but most of the points separating it from *frontalis* apply here also, while the antennae and male front tarsi are quite different. Dark forms of *garneysi* Fowl., *pulicaria* Costa, *humeralis* F. and *regimbarti* Schil. have slender antennae and thin front tarsi in both sexes. As pointed out in section 4, the aedeagus is figured by Buck (1954: 19, fig. 45) as that of *hudsoni*.

Several specimens of *A. bohémica* were beaten off broom (*Sarothamnus*), doubtless in flower, in the garden of Forest Lodge at Nethy Bridge, Inverness-shire, on 22.vi.51 and perhaps other dates, by the late G. H. Ashe and recorded as *A. hudsoni* (Ashe, 1952: 167). Two males that he sent me were recognised much later as the present species from Hansen (1958: 219-220). *A. bohémica* appears to be mainly boreomontane in Europe, extending from Austria and Czechoslovakia to Scandinavia but later found also in Denmark and Holland, and regarded as very rare (Ermisch, 1969: 191). In Britain it may be overlooked through having been confused with others, but will most likely prove confined to the Scottish Highlands. Further material should be in Ashe's collection in Torquay Museum over the label *hudsoni*. In Denmark it has been beaten from the male flowers of pine, and so may possibly be associated in the early stages with conifers.

¹ The Anaspidinae are located in the Scraphiidae by a few modern authors on the grounds of certain larval characters. However, the adults conform so strikingly overall to the peculiar structure of Mordellidae (except in lacking the pygidial spine) that their traditional position in the latter family seems the more natural, and is adopted by Ermisch (1969).

² 49 Montcalm Road, London SE7 8QG.

2. *Anaspis schilskyana* Csiki in Junk, 1915, *Col. Cat.*, 63: 65 (= *lateralis* Gyll., *marginicollis* Lindb.).—Another species of *Anaspis* s.str., more closely akin than the last to *A. frontalis* L., of which it was first described by Schilsky as a variety ('var. B'). It differs, however, from that species in several critical points of structure, average smaller size, etc., and in fact is decidedly nearer in most respects to *A. garneysi* Fowler—a species little known to Continental authors of the last century. With this, *schilskyana* agrees above all in the formation of the antennae and male anterior tarsi (both slender, unlike those of *frontalis*); but differs in the shape of the male front and middle tibiae, and especially in the ventral characters of the same sex which are of the *frontalis* type. This last difference is partly visible even in side-view, where the peculiar form of the laciniae in *garneysi* but not in *schilskyana* is associated with an abrupt change of level between sternites 3 and 4. There are, moreover, two pronotal features that separate the present species not only from either of the above but also from practically any other with which confusion might be possible: the lighter colour of the pronotum at least at sides and towards hind angles, and the outline of its side-margin in the latter region (see the key below).

I recently detected a male of *A. schilskyana* amongst my material of *A. garneysi*—taken, again by G. H. Ashe, at Blenheim, Oxfordshire (1.vi.53). He must have passed it as a slight teneral or variant specimen of the last-named, as I myself did at first, but a close inspection and comparison quickly proved decisive. The description and figures by Hansen (1945: 68, 69, 72-3) are very clear and accurate, and the above specimen agrees with them in every detail—as also with a Swedish male sent to me many years ago by Dr Th. Palm. According to Ermisch (p. 192) *A. schilskyana* is north-European, very rare in Germany on the north and east coasts only. Hansen (p. 73) gives three Danish localities and writes (I translate): "especially on flowering whitethorn standing near old oaks, in June. Larvae are found in half-dry, red-rotten oak wood in January and adults eclose in April". It is of interest to note that the single British example yet known was most likely taken in Blenheim Park, an ancient forest locality with many old oaks, in which Ashe certainly collected.

3. Key to the above two species and their nearest British allies; with remarks on a few others.

(Largely black species, at least elytra wholly black; antennae with segments 7-10 more or less conical and not moniliform—cf. *A. rufilabris* and its allies.)

- 1/4 Antennae relatively stout, segments 8-10 not longer than broad. *Male*: front tarsi at least in part strongly dilated, the widest part at least as wide as apex of tibia. (Front and middle tibiae not sinuate on either edge; straight, or the former curving a little outward.)
- 2/3 Smaller species (L. 2.5-3.4 mm.), suboblong, less elongate, less convex; head black, segment 1 of antennae darkened; 11 unusually elongate, twice as long as broad and twice as long as 10; maxillary palpi much smaller (about as in *maculata* Geoff.), dark; pronotum strongly transverse, hind angles rounded off in lateral view; the two mid-tibial spurs subequal in length; middle and hind tibiae, seen

from above, differing hardly at all in form and not very much in length. (Legs dark or largely so, segments 2-3 of antennae light.)

Male: front tarsi as long as the tibiae; segment 1 longer than, and about as wide as, 2. Appendages arising from sternite 2 and borne on a common stem almost as long as the short divergent laciniae; sternite 3 bearing a short truncate process with tufted apex; 5 without median impression, but having a deep narrow apical incision continued to base as a furrow *bohémica*

- 3/2 Larger species (L. 3-4.5 mm.), fusiform, more convex and elongate; front of head and segment 1 of antennae clear flavous; 11 little longer than broad and little longer than 10; maxillary palpi much larger (proportionately), seldom all dark; pronotum feebly transverse to quadrate, hind angles marked in lateral view; the two mid-tibial spurs plainly unequal in length; hind tibiae much shorter and more rapidly dilating to apex than middle pair.

Male: front tarsi shorter than tibiae, segment 1 much shorter and narrower than 2. Appendages arising from sternite 3, without a common stem, long, reaching about middle of 5 and incurved at apex; sternite 5 deeply impressed medially, having a broad deep rounded-triangular incision apically *frontalis*

- 4/1 Antennae long and slender, segments 8-10 plainly longer than broad. *Male*: front tarsi slender, linear, narrower than apex of tibia, with segment 1 the longest.

- 5/6 Pronotum distinctly paler (yellow-brown) at sides, especially behind, even the disc sometimes paler (pitchy-brown) than elytra; sides rather straightly widened to extreme base, in lateral view sinuate with the angles 90° or less.

Male: front tibiae slightly incurved; middle tibiae linear, scarcely thickened towards apex, outer edge practically straight, inner subsinuate, giving a slight (post) median constriction; segment 1 of middle tarsi shorter, not or barely constricted medially. Appendages and sternite 5 almost as *frontalis* (3/2), but the latter unimpressed, and sternite 4 with a pair of small short secondary laciniae normally hidden by the primaries; these approximate at base, the contours normal *schilskyana*

- 6/5 Pronotum unicolorous black, sides a little rounded behind so as to be widest before base, not or hardly sinuate in lateral view with the angles well over 90°.

Male: front tibiae straight; middle tibiae steadily thickened to apex, outer edge slightly outcurved, inner practically straight; segment 1 of middle tarsi longer, a little constricted medially. Appendages widely distant at base, strong, caliper-like, curved inward and also concavely, enclosing between them a broad shining excavation; the secondary pair (from sternite 4) following, and lying dorsal to, the primaries *garneysi*

It is noteworthy that the two species here added to our list appear very scarce on the Continent—an indication of their probable relict status in Britain. In contrast, *A. (Nassipa) flava* L., found commonly over most of Europe, is still not known from this country. Collectors should keep a sharp look-out for it; the species might easily pass as the closely allied *A. costai* Em. if the lack of appendages in the male were not noticed. Another which could be overlooked is *A. ruficollis* F. (nec auct. Brit.), very like our common *A. regimbarti* Schil. but with uniformly pale elytral pubescence.

A. florenceae Donis. is now rightly regarded as a black form of *maculata* Geof.; it appears to be not uncommon in some districts.

The species that has stood for some time in the British list as *latipalpis* Schil. is now considered to be a mere colour-form of *thoracica* L., and so must take the latter name with us.

Champion (1898), when introducing it (as *latipalpis*), remarked that it and *subtestacea* Steph. (now *lurida* Steph.) "are apparently about equally common in Britain", having taken each species in three different localities; while Joy (1932a) gives *latipalpis* as common, but *subtestacea* as local. My experience is very different: I find *lurida* quite general in the south-east—though seldom if ever abundant—but *thoracica* very local and scarce hitherto, and can record it (in the male sex) only from Berks. (Windsor, 1), Bucks. (Hell Coppice, 1 or 2), and Kent (Ham Street Woods, 2). Such a change as this suggests in the relative incidence of a pair of species over a longer or shorter period is by no means unexampled. Note that *all* the characters given by Buck (p. 20) for separating these two species—not merely that relating to the antennae—apply to males only; females may be hard to distinguish, except by the slightly broader apical joint of the palpi in *thoracica*.

It will be as well to point out a curious double error in Fowler (1891) concerning the antennae of *A. frontalis*. Firstly, he writes (p. 17, 1.10) "joints 6-10 gradually increasing in length". this recurs in the key on the previous page, where "increasing gradually in length" can be rectified by substituting "gradually becoming conical in form". Secondly, his statement "Male with the antennae longer than in female" (p. 75, 1.16) is incorrect for this species, individuals of the same size but opposite sex having antennae of equal length; whilst oddly enough under *garneysi*, where the statement would have been correct, he does not make it. (The disparity in antennal length between the sexes is most marked in *humeralis*, among our species.) The figure of the *frontalis* antenna given by Joy (1932b) is accurate, except that segments 3 and 4 should be stouter; that of the female hardly differs.

4. The status of *Anaspis hudsoni* Donisthorpe (1909).—This has seemed to many of us an unsatisfactory species, not sharply enough distinguished from *rufilabris* Gyll.; it was ignored by Joy (1932), though admittedly that has little significance. The description based on a single male is detailed (Fowler & Donisthorpe's version of 1913 is shortened); yet, with one apparent exception accounted for below, nothing in it definitely excludes the species just named³; while, significantly, the latter is *not* among those compared by the author with his *hudsoni*. As he expressly states having examined all our species and gives figures of their male appendages, this oversight is indeed strange. His one reference to *rufilabris* vis-à-vis *hudsoni* is in a later note (1911) recording a female of the latter, but it is hardly convincing. The one material character that does appear at first sight to uphold the claim of *hudsoni* to specific rank concerns sternite 5 of the male abdomen, which should be unusually elongate and lack the deep cleft or split in the apical margin possessed by *rufilabris* (though often overlooked). Both this

³ The epithet "sparse" applied in the description to the pubescence must be a mistake; all *Anaspis* are densely pubescent.

crucial point, and the retention of *hudsoni* as a good species by Buck (1954), require notice.

As to the first, I believe the supposed difference can be explained as due to an artifact. Examination of the type shows the 6th segment—normally in an *Anaspis* concealed within the 5th, though often with the apex visible—to be further extended than usual, as can be seen by viewing the tip of the inverted abdomen from a little beneath. Looked at from above (i.e. in the ventral aspect, the abdomen being mounted separately with venter uppermost), it seems that the apical margin of the 5th is stuck down upon the projecting 6th so that the actual outline of the former is all but invisible; however, with suitable lighting, a deep cleft such as exists in *rufilabris* can just be made out. In effect, therefore, the 5th sternite has been provided fortuitously with a false *entire* apical margin, also making it appear still longer; compare fig. 1 (*hudsoni*) in Fowler & Donisthorpe, plate A, with fig. 5 (*rufilabris*)—which, be it noted, is substantially identical with Buck's figure for *hudsoni* (see below). In fact the description mentions "the appearance of a sixth segment". There is further (in the author's words, and shown in his figure) "a small pit or depression . . . the lips of which appear to be slightly raised". This formation, however, is normal to *rufilabris*, though not always clearly visible unless the segment is extended (as in '*hudsoni*') or separated; the elongate pit or furrow is continuous with the apical cleft, at whose proximal end it lies.

There remains the double difficulty that Buck (1954) figures both the male appendages and aedeagus, under these names, of what must be different species.

Regarding these figures, however, two facts emerge: first, no one has been able to find an *Anaspis* with biflexuous appendages as in fig. 33 (p. 18), representing *rufilabris*—the species known by that name both here and on the Continent⁴ having them straight, as figured by Buck for *hudsoni* (fig. 34); and second, whilst the aedeagus of *rufilabris* is recognisably as shown, the figure purporting to be that of *hudsoni* (45, p. 19) exactly matches the aedeagus of *bohémica* Schil. (see section 1). A male of that species must therefore have been unwittingly used for the *hudsoni* figure—indeed, in the type of the latter insect the organ does not seem to have been dissected out. The figure of the *rufilabris* appendages, just remarked on, is less easily explained, and it would appear almost as though an unknown species were in question. Unfortunately Mr Buck was unable to trace the specimen from which the figure was drawn.

A few records of *A. hudsoni* have appeared in recent years, doubtless based on Buck's fig. 34. In earlier times, as far as I know, only Hudson Beare (1919) claimed to recognise it in several specimens from the type locality, Nethy Bridge, Inv.—oddly enough the sole locality yet known for *A. bohémica* in Britain.

⁴ I have had males of *rufilabris* from Dr A. Strand, Oslo, which agree in all respects with our insect.

From the facts adduced here, I think it will be generally admitted that the so-called species *hudsoni* Donis. must sink as a synonym of the rather common *ruflabris* Gyll.

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Postscript

In the preparation of the foregoing notes, a relevant paper was unfortunately overlooked, which—though necessitating no material change in what I have already written—ought at least to have been included in the bibliography: Donisthorpe, 1930, The British species of *Anaspis* Geoffroy, *Ent. mon. Mag.*, **66**: 249-252, & Plate IX. Here the author admits that the figures by Dollman that he had given earlier (1909, 1913) are not quite satisfactory nor always accurate, and therefore furnishes an improved set of drawings of the ♂ appendages. In this plate, the close similarity between figs. 7 and 10 (*maculata*, *florenceae*) and between figs. 13 and 14 (*ruflabris*, *hudsoni*) must surely have been noticed by him, yet, if so, he failed to draw the obvious conclusion.

The two last-mentioned figures are instructive in that 14 (*hudsoni*) almost perfectly represents what one would conceive as the result of extending the segments of 13 (*ruflabris*) well beyond the normal; the only real difference being that the 5th sternite is shown with an entire instead of notched hind margin. Even this difference, however, is weakened by the tell-tale mark the artist has inserted which shows that she had perceived (though misinterpreted) an emargination. In his accompanying text-note on *hudsoni* (p. 251), Donisthorpe, though not grasping the significance of this mark, does point out that what he had originally described as "the appearance of a 6th segment" is in fact—viewed under a high power—a true 6th segment extended beyond the 5th.

All this seems to support the explanation above put forward for the supposed specific characters of *A. hudsoni*.

A Few Notes on Clearwings

By H. C. HUGGINS, F.R.E.S.*

I was very interested in Mr Allen's note on the colony of *Aegeria vespiformis* L. on elm at Bleackheath.

In August 1934, I was walking down Chalkwell Avenue in this town, when I saw on a young poplar with a stem about four inches in diameter, a boss the size of two closed fists. The trunk of the rest of the tree was quite smooth and the boss had evidently been caused at the beginning by some casual injury, but now it was riddled by Clearwing larvae, and several emerged pupa-cases were still visible. These seemed a bit larger than the average run so I hoped they might prove to be *Sciapteron tabaniformis* Rott. Next year in early June I revisited the tree and extracted a number of pupae, and bred several very fine *vespiformis*, two of which I still have.

I wrote about this to my friend J. C. F. Fryer (later Sir John Fryer, K.B.E., F.R.S.) and he wrote back that he had recently been breeding this moth from elm, but only found it where there were excrescences from frequent pollarding.

The tree in Chalkwell Avenue was removed two years later as it did no good, but in 1955 I found a number of *vespiformis* pupae in nodules on old poplars in St. Helen's Road, Westcliff; these nodules were caused by annual pollarding of trees at least 30 years old. All have since been removed.

In 1955 I was strolling round the Southend Nature Reserve towards the end of June in a part that had been coppiced two years before and saw a couple of pupa-cases protruding from the stool of a sweet chestnut. I set about examining these and found several more, two of which had newly emerged *vespiformis* beside them. I also got a moth from an aspen stool, which at first greatly surprised me, but on reflection I decided a poplar feeder might easily try aspen. Curiously enough I have never obtained *vespiformis* pupae from oak except from two or three year old stumps under the bark, where of course it may be found in most southern woods.

I have never seen *S. tabaniformis* Rott. and my friend Fassnidge told me he believed all genuine British specimens had been accidentally imported in foreign timber. Saleroom specimens have usually a different origin; I well remember Cockayne's mischievous grin and "Aren't you going to bid?" when several of these cropped up from time to time.

Mr Allen's mention of the pupa-cases on the elm roots reminds me that the larva of *Sesia apiformis* Clerk often goes right down into the poplar roots; I have found the emerged cases sticking out of the ground a couple of feet from the trunk. *S. apiformis* was formerly very common here; I have seen a dozen newly emerged ones in a morning about 9 a.m., but by mid-day all would have ascended the tree. As I think I have written before, the male copulates with the female on the wing, flying backwards to her as she clings to the bark. Once connected he drops to sit below her on the tree. Owing to a change

* 65, Eastwood Boulevard, Westcliff-on-Sea, Essex.

of policy all the town poplars have been removed and I have not seen the moth for five years.

Another Clearwing which is now much rarer is *A. formicaeformis* Esp., owing to the osiers used in basket-making being no longer grown. This moth had several ways of feeding. In the new shoots it made a smooth symmetrical gall. When I lived at Faversham from 1924-28 there was a large osier-bed that had not been touched for ten years or more, and was gradually being destroyed for the brick-earth on which it grew. I found the larvae both in the young shoots and also in the big trunks, about as thick as a man's wrist, usually in the fork. These required a big lump of the trunk being brought home, but as the bed was being destroyed I was allowed to cut out sections with a saw. The specimens bred from the trunk were invariably smaller than those from the shoots, probably from the hard drier wood. I still have examples of both.

Formicaeformis is common in the Coomerkane Valley, near Glengarriff, Co. Cork, where it feeds in the sallows by the side of the road, seeming to prefer those cropped by goats, although these pests must eat a lot of the larvae.

Fryer used to breed *formicaeformis* by sawing off the tops of the stumps from which the osier shoots sprang, in the same way as is done for *A. culiciformis* L. on birch.

Notes and Observations

MYTHIMNA LOREYI DUP. (THE COSMOPOLITAN), COLIAS CROCEUS GEOFF. AND OTHER IMMIGRANTS IN CORNWALL IN 1975. — At the Lizard, Cornwall, in August, I took the following at light: *Mythimna loreyi* Dup. (24th, one, 28th, two), *Trichoplusia ni*. Hb. (26th, one), and *Hyles lineata* F. ssp. *livornica* Esp. (24th, one, 25th, one). By day, I noted several *Macroglossum stellatarum* L., many *Cynthia cardui* L. and about 40 *Colias croceus* Geoff., including one female of the pale form. — BERNARD F. SKINNER, 85, Elder Road, West Norwood, London, S.E.27.

AN EXCESS OF ORGYIA ANTIQUA LINN. (THE VAPOURER). — Acting upon a rumour I visited Coventry City centre on Sunday 27th July where I was presented with an incredible sight. The moth was in all stages of development, batches of eggs, larvae in all sizes, cocoons and imagos. Every new leafless branch of the street trees was enveloped with a haze of cocoons, some forks having up to twenty spun one on the other. The never ending army of larvae had progressed to pavements below regardless of pedestrian traffic. The nearby telephone exchange building was smothered with eggs from wingless females which themselves hung in scores from windows and ledges. Larvae reached unnerving heights in their fruitless quest for food. Never have I seen such enormous numbers of any species in so small an area. It seemed strange that up to this date I had not even a bred series in any of my cabinets. — DAVID BROWN, Charlecote, Warwick.

MIGRANT LEPIDOPTERA IN SOUTH-WEST SCOTLAND IN 1975.

— During a short holiday in Wigtownshire, the following species were recorded. *Colias croceus* Geoff., one on the shore of Luce Bay, near Ardwell, 10.viii. *Nycterosea obstipata* Fab., one at actinic light near Stranraer, 11.viii. *Autographa gamma* L., very common throughout the area, 10-14.viii. *Nomophila noctuella* D. & S., one at actinic light near Stranraer, 14.viii. *Pyrausta martialis* Guen., one at actinic light near Stranraer, 12.viii. — R. J. REVELL, The Perse School, Cambridge, CB2 2QF.

EUBLEMMA OSTRINA HB. AND COLIAS CROCEUS GEOFF. IN IRELAND IN 1975.—While on a week's stay at Dingle, Co. Kerry, I netted during the day a female *Eublemma ostrina* Hb. on 15th June; and on a further visit there, noted a male *Colias croceus* Geoff. on 1st August. — BERNARD F. SKINNER, 85, Elder Road, West Norwood, London, S.E.27.

THE FOODPLANTS OF ARCHANARA SPARGANII (ESPER). — At Browndown, Hampshire, on 30th June, I found larvae and pupae of this species in stems of *Typhus angustifolia* and *Scirpus tabernaemontani*. I am not sure whether these foodplants have previously been recorded for this species. — D. W. H. FFENNELL, Martyr Worthy Place, Winchester, Hants.

DAPHNIS NERII (LINN.) IN NORTH HAMPSHIRE. — A female of this species was found in an m.v. trap at this address on the morning of 18th August. It was in moderate condition. The specimen, the first in Hampshire since 1957, was not kept for eggs because, the life history of the species being already well known, it was considered of greater scientific interest to preserve it in the condition in which it arrived. It was fortunate that the moth succeeded in entering the trap, since a female *Agrius convovuli* (Linn.) of about the same wing span, which was still on the outside of the trap at daylight on 17th September, was eaten by blackbirds. They were, however, considerate enough to leave me a forewing and a hindwing for identification. — D. W. H. FFENNELL, Martyr Worthy Place, Winchester, Hants.

DEILEPHILA ELPENOR (LINN.) IN SEPTEMBER. — At a season when all who run moth traps are on the look out for migrant hawkmoths, it was a surprise to find a specimen of this species in my trap on the morning of 22nd September. I have not previously heard of the Elephant Hawk either as a migrant or as producing second brood specimens, although South mentions an occasional late summer emergence, but I am inclined to think, after this warm summer, that this is an example of the latter. This one is in mint condition, and the species responds well to forcing — I once had a bred specimen emerge on Christmas Day. — D. W. H. FFENNELL, Martyr Worthy Place, Winchester, Hants.

EPIONE PARALELLARIA D. & S. AND HYLES GALLII ROTT. IN 1975. — On 10th August, I was surprised to take a single *E. paralellaria* D. & S. at m.v. light at Aviemore, a species I do not think has been recorded previously from here. On 14th August, I took a female *H. gallii* Rott. at light in my garden trap here in Selsdon, which laid 48 eggs, all of which were infertile. — E. H. WILD, 112, Foxearth Road, Selsdon, Croydon, Surrey, CR2 8EF.

ORNITHOPTERA (SCHOENBERGIA) PARADISEA BORCHI HAUGUM & LOW, 1974. — Owing to the fact that this recently described subspecies is as yet unfamiliar to many collectors etc., some error may arise in the correct identification of specimens. The co-author (A. M. A. Low) who possesses the Holotype and Allotype, would be happy to confirm determination of any specimens collectors or students may care to submit for examination. — A. M. A. LOW, F.R.E.S., Colne Mead, West Drayton, Middlesex.

BUTTERFLIES ON LOOE ISLAND. — On 21st June 1973, I spent a few hours on Looe Island. Also known as St. George's Island it lies half a mile south of Hannafore Point, Looe, Cornwall and is only about three quarters of a mile in circumference. I noted the following butterflies: Speckled Wood (*Pararge aegeria* L.), common; Meadow Brown (*Maniola jurtina* L.), very common; Small Tortoiseshell (*Aglais urticae* L.), three; Large White (*Pieris brassicae* L.), a few; Small White (*P. rapae* L.), a few; Large Skipper (*Ochlodes venata* Bremer & Grey), six. — G. SUMMERS, 23 West Close, Stafford, Staffs. ST16 3TG.

MACROGLOSSUM STELLATARUM L. ON THE ISLE OF CANNA. — A rather worn specimen of the Humming-bird Hawkmoth was taken in my m.v. trap on the morning of 5th August after the hottest night here that anyone can remember, the temperature at dusk being 72° and in the morning 67°. Two specimens of *M. stellatarum* were seen here during the fine summer of 1947, but none since until this capture. — J. L. CAMPBELL, Isle of Canna, Hebrides, Scotland.

LOZOTAENIODES FORMOSANUS (GEYER) IN N.W. KENT. — A single example of *Lozotaeniodes formosanus* (Geyer) was taken in a Heath Trap in my garden at Orpington, Kent, on the night of 7th July, 1975. Bradley, Tremewan and Smith, *British Tortricoid Moths* (1973), give Whitstable, Folkestone, Ham Street and Sandwich as the Kentish localities, and suggest the species is migratory. I have not come across this moth during four years of regular light trapping in Orpington, but A. A. Allen has recorded it from Blackheath in S.E. London some 12 km. distant (*Ent. Rec.*, **81**: 149) and Mr E. H. Wild tells me he has taken three examples this year in his Selsdon garden about 8 km. from Orpington. Perhaps this moth is breeding over a wider area than is suggested in the literature, although such a large and striking insect is unlikely to be overlooked. — P. A. SOKOLOFF, 4 Steep Close, Green Street Green, Orpington, Kent.

EUPITHECIA PHOENICEATA (RAMBUR) IN SURREY. — On the night of 16th/17th August, 1975 I had in my trap a single, very large example. This appears to be the first record for Surrey, and also the first for a wholly inland county. It remains to be seen whether it will become established in Surrey, as *Lithophane leautieri* (Boisduval) seems to be since 1969, a few miles away. There is no *Cupressus macracarpa*, which is the usual larval food of both species, nearby, but I have *C. lawsoniana* in my garden, which already harbours another Pug, *E. intricata arceuthata* (Freyer). — R. F. BRETHERTON, Folly Hill, Birtley Green, Bramley, Surrey. 16.9.75.

Current Literature

The Butterflies and Moths of Hampshire and the Isle of Wight

by **B. Goater**. xviii + 439 pp. E. W. Classey, 1974. £6.50.

Hampshire (including the Isle of Wight) is among the richest counties for Lepidoptera, both historically and for the number of rare species that occur there. Since the first definitive list of its Lepidoptera compiled by H. Goss, E. R. Bankes, P. M. Bright and W. H. B. Fletcher in the *Victoria County History*, two others have been issued. W. Fassnidge's list (published in 1923-31), which leaves much to be desired but is mainly fairly sound; and now the work under review, and the first one for the county for 75 years to cover the entire Order.

Generally speaking, the compiler has divided the records into vice-counties as follows: Isle of Wight (v.c. 10), South Hants. (v.c. 11), North Hants. (v.c. 12); and then arranged them in these areas locality by locality in accordance with the 10 km. grid square system. To assist the reader, localities mentioned in the text are listed alphabetically in an Appendix, together with their respective vice-counties and grid squares. There are two indices: one of the English Names and one of the Scientific Names. The work is well documented and on the whole, the data are adequate. Noteworthy are Mr Goater's personal observations on habitat, especially with reference to the Macrolepidoptera. As regards the Microlepidoptera, however, he seems to have relied mainly on other people, particularly Mr D. W. H. ffennell, whose many contributions add greatly to the importance and value of the book.

The compiler erroneously claims for Hants. the first British *Polychrisia moneta* F., whereas in fact the first specimen was taken in Kent. On the other hand, there is no mention of historic records for a number of Hampshire species, including some that constituted first British records. For example, *Scythris variella* Steph. was first taken in June 1834, in a "Sand-pit near Lyndhurst, on the Bewley-road", and in this instance the moth was not only new to the county but new to science. *Agonopterix*

carduella Hübn. should not have been placed within square brackets, as it is a good Hampshire species with two specimens that Stephens recorded from near Brockenhurst. Conversely, we question the inclusion of *Caryocolum huebneri* Haw. as a Hampshire moth, and the determination of the only specimen upon which the record for this was based.

Among the host of interesting records in this fascinating volume, is one of the authenticated capture of two *Periphanes delphinii* L. at Ditcham Park, near Petersfield. This is a particularly noteworthy entry, with so few genuine British examples of this beautiful moth on record, and none to our knowledge during the present century.

The text is printed in a somewhat inelegant sanserif type, though fairly bold and clear, and there appear to be relatively few printings errors. The whole of this account is infinitely more comprehensive than anything that has yet appeared on the Lepidoptera of this part of Britain, and for which without doubt it will be the standard work for many years to come. A Supplement is already in preparation, publication of which is expected by 1985. —J.M.C.-H.

British Moths, Books 1 and 2 by George Hyde. 5in. x 7½in.

Jarrold & Sons, Norwich. 1974. Price 30p each.

These two small works are a fitting sequel to two similar books on British Butterflies also under the authorship of Mr George Hyde of Doncaster and, as in the previous work, the colour photography and its reproduction is of the highest order. Each small book has a very erudite introduction giving a synopsis of the families and species contained in it as well as a general short treatise on moths and their habits and some of their habitats in the British Isles, in addition to a description of how to catch them by various devices. Of the 53 species of imagines shown and 23 photographs of early stages, each is most clearly entitled both with its scientific name as well as the British equivalent; and what is most important and precisely defined, is the normal expanse of each insect or length of its larvae, since many of the photographs are larger than natural size. The first part covers many of the hawkmoths and their larvae, together with excellent studies of the Kentish Glory, the Lobster and the Alder with their respective larvae, some of which are very spectacular. Part 2 covers many familiar moths such as the Oak Eggar, the Drinker, the Lappet and several Geometers such as the Blotched Emerald, the Magpie and the Swallow-tailed, all in natural poses. A noctuid of special interest also depicted is the Rosy Marsh Moth, rediscovered in Britain in 1965 after a lapse of 120 years. The two little books make a most delightful ensemble throwing light on some of our more well-known moths in their natural colours and habitations and both are to be very well commended.—C.G.M.deW.

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(Founded by J. W. TUTT on 15th April, 1890)

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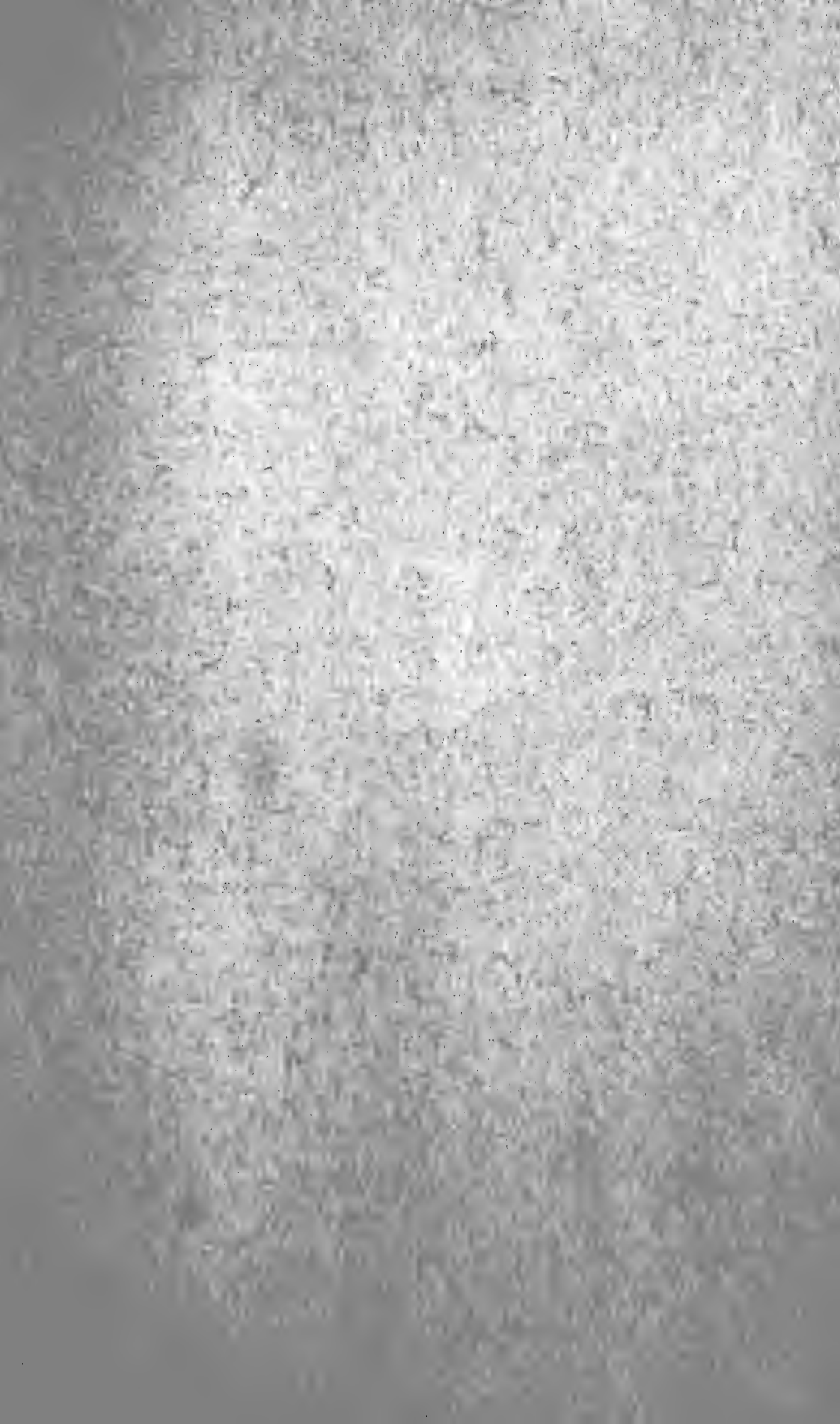
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THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

Edited by J. M. CHALMERS-HUNT, F.R.E.S.

with the assistance of

A. A. ALLEN, B.SC., A.R.C.S.

C. A. COLLINGWOOD, B.SC., F.R.E.S.

NEVILLE BIRKETT, M.A., M.B.

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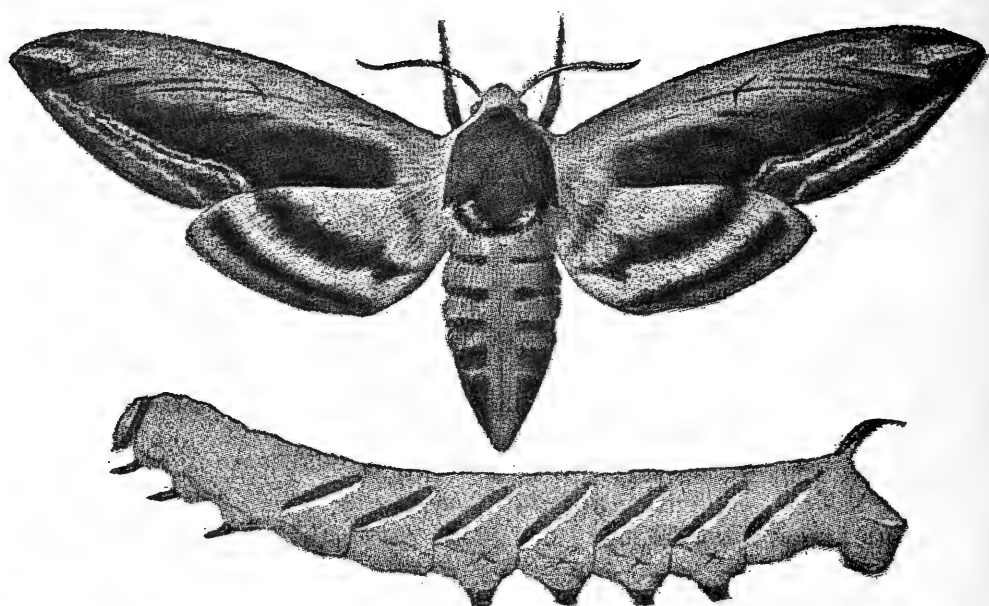
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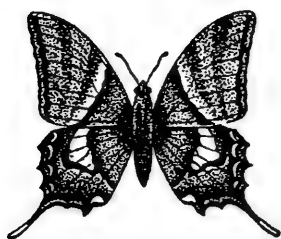
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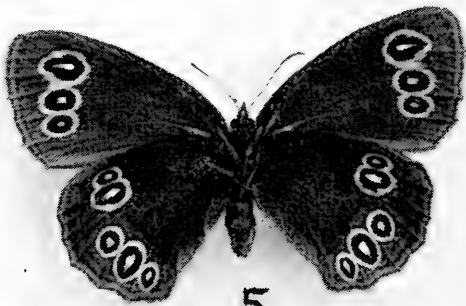
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Lysandra coridon Poda

- Fig. 1. *Ab. infrasemisyngrapha* B. & L., ♀.
 Fig. 2. *Ab. semisyngrapha* Tutt, ♀.
 Fig. 3. *Ab. fowleri* South, ♀.
 Fig. 4. *Ab. ultrafowleri* B. & L., ♂.
 Fig. 6. *Ab. marginata* Tutt, ♂
Aphantopus hyperantus L.
 Fig. 5. *Ab. lanceolata* Shipp, ♀.

Notes on Breeding Aberrations of the Chalk Hill Blue: *Lysandra coridon* (Poda)

By RICHARD REVELS*

Ab. semisynggrapha Tutt

My capture of a *L. coridon* ab. *infrasemisynggrapha* (Bright & Leeds) female (fig. 1) on Royston Heath in August 1969, prompted me to try breeding this beautiful aberration. Accordingly, I placed the specimen in a wooden box covered with netting, and containing some cut flowers in jam jars of water and a pot of growing horse-shoe vetch (*Hippocrepis comosa*). During the following two weeks, about 100 ova were laid on the *H. comosa*, as well as on the grass and other debris mixed with it.

The pot with the ova was then placed in an unused outdoor cage, which proved to be a mistake, as nearly all the ova were eaten by earwigs or some other predator which must have been in the cage. Only three larvae were found in the spring of 1970, but these were successfully reared to produce an F1 generation of one male and two females, all of which were typical. These three individuals I placed in a breeding cage, but although no pairings were seen, plenty of fertile ova were laid. I took more care of the ova this time, putting them on a potted foodplant covered over with netting secured around the pot by a rubber band cut from an old car tyre inner tube, and placed the pot out-doors throughout the winter.

I had a good hatch from these in the spring of 1971, and in early May counted about 200 small larvae. But success was not to be had as easily as I had hoped, as at the end of May I could only find about 80 larvae. No predators could be seen by day, so I made an after dark search by torch light and found a number of slugs, one of which was half way through eating a larva. Altogether I removed about 20 slugs of all sizes from the four pots. How these slugs came to be there is a mystery, for the pots were in a washing-up bowl with water in it to sustain the growing plant and to act as a moat to keep out predators.

The resulting F2 generation consisted of 11 males, three typical females and five *semisynggrapha* females. These five were true *semisynggrapha* and more extreme than the original 1969 example. One of the best was chosen for breeding, and a typical wild male put with her. A pairing was seen and about 80 ova were laid.

I gathered up about half of the ova, and put them in a plastic tea strainer enclosed in a sleeve of fine nylon netting to keep out earwigs, etc. I then put this package in an outdoor cage which kept out most of the rain, and so the ova had to be sprayed with water regularly throughout the winter until placed on the foodplant the following spring. The rest of the ova I netted over on the foodplant as before. Both these methods eventually proved successful, and I have since continued to split up the ova in this way so as to reduce the risk of loss.

* Top Field Farm, Dunton Lane, Biggleswade, Bedfordshire SG18 8QU.

In the spring of 1972 I again had slug trouble, but managed to rear 19 males and 23 females, all of which were typical. From these, I obtained pairings between a male and an unrelated typical female (code 72a), also between a brother and sister (code 72b), and ova were laid from both stocks.

In 1973 I had a hatch of 12 males, 10 typical females and seven abs. from the 72a stock; and 17 males, 12 typical females and eight abs. from the 72b stock. Several of these abs. were very extreme ab. *semisyngrapha* (fig. 2).

In order to test if some of these 1973 males were carrying the aberration gene, I paired four of them with unrelated typical females, each of which laid about 30 ova before they were released. Owing to a shortage of potted *H. comosa* in the spring, I had to put all these ova together on one plant, but succeeded nonetheless in rearing 14 males, eight typical females and four *semisyngrapha* females.

From the foregoing, it would appear that *semisyngrapha* is inherited as a sex linked recessive, the aberration gene being passed down from a female ab. to all her sons (which look normal of course) but to none of her daughters in the F1 generation. A pairing between an F1 male and any female should produce about 50% *semisyngrapha* females. About 50% of the males should also be carrying the *semisyngrapha* gene, and so be able to produce this ab. in the next generation.

Ab. marginata Tutt

I captured a rather worn male ab. *marginata* on the Chilterns in August 1971, and decided it would be worth trying to breed from it. I took it home alive and put it with a freshly hatched female from one of my other stocks. A pairing took place the following day and in due course about 50 ova were laid. From these I obtained an F1 generation consisting of seven females and five males. These males had fairly good black margins, but were only transitional to ab. *marginata*. A pairing between one of these males and a female was obtained and about 80 ova resulted. This produced an F2 generation in late July 1973 consisting of seven females and eight males. These males ranged from those having about the typical width of black margins, to one very good ab. *marginata* (fig. 6).

From the above results I would think that *marginata* is a multifactorial aberration rather than a recessive, and if that be so, breeding from the best abs. each year should in a few generations produce some very black male abs. I tried to breed an F3 generation, but the larvae died during a spell of cold wet weather when they were set for changing to pupae, for which I suspect a fungal disease was responsible.

Ab. fowleri South

I had the good fortune to capture two female *L. coridon* ab. *fowleri* South. The first was in Dorset during early August 1970, and although I took it home alive, I did not have the

courage to try breeding from it. I took the second *fowleri* from the same locality in August 1972, and having by then gained experience in breeding *coridon*, had no hesitation in risking spoiling the specimen (which was in very good condition) by putting it in my breeding cage. After two days it had laid 24 ova, and as it was still in good condition, I kept it for my collection (fig. 3). From these ova there was a good hatch in the spring of 1973, and in May I counted 16 larvae. A further count in mid June however, revealed only five healthy larvae, and two that had been "spun up" by a spider. The spider was removed, and the five larvae duly pupated. In due course I had an F1 generation of one male and four females, all of which were typical. From these I obtained a pairing, and about 60 fertile ova resulted.

The F2 generation in 1974 produced 14 typical males, six ab. *ultrafowleri* B. & L. males (fig. 4), 11 typical females and four ab. *fowleri* females. Most of the butterflies of this brood were below average size. The result of this breeding experiment is about what one would expect in an aberration inherited as a simple recessive.

From these I managed to obtain a pairing between one of the male *ultrafowleri* and a *semisyngrapha* female, and with some luck this should produce some interesting results in 1976.

Notes on Breeding the Ringlet: *Aphantopus hyperantus* (Linn.) ab. *pallens* Schultz and ab. *lanceolata* Shipp

By RICHARD REVELS*

On 13th July, 1972 I had the good fortune to capture in Monks Wood, Hunts., a perfect male specimen of the very rare "Golden Albino" (ab. *pallens* Schultz) of *A. hyperantus* (L.). I took it home alive, and that evening photographed it while it was feeding (in the house) on the flowers of thistle and knapweed. A typical female *hyperantus* had emerged that day from several larvae I had found on the Chilterns in June, and having decided it would be worth an attempt at a pairing, next morning I put them in a wooden box covered with netting and containing flowers in two jam jars. An inspection at 10 a.m. revealed a pairing, and an hour later when they had parted, the *pallens*, still in perfect condition, was removed for my collection. The female laid about 70 ova during the following week. They were not attached to anything, but presumably just dropped while flying about in the cage, and I collected them up each evening by touching them with a damp paint brush to which they readily adhered.

Having never before bred this species from ova, I was relieved to find that this is one of the more easy species to rear. The ova were split into two lots: one lot being placed on

* Top Field Farm, Dunton Lane, Biggleswade, Bedfordshire SG18 8QU.

growing *Poa annua* in an out-door breeding cage sheltered from the direct rain; the other ova were put on grass, growing in a netted-over plastic tub kept out-of-doors and exposed to all weathers. There did not seem to be any difference in the survival rate of the larvae from these two methods of over-wintering.

The larvae fed up slowly during the autumn and milder periods of the winter, and were about $\frac{3}{8}$ of an inch long by the time they started feeding in earnest at the end of March, and by the end of May were full grown. A number of the larvae was noted lying on their sides on top of the ground among the grass with no kind of cocoon or protection at all, and which after a week turned to pupae.

The resulting F1 generation consisted of about 30 specimens, all typical and rather below average size. I put about ten of each sex in a breeding cage. One pairing was seen, and others may have taken place, but of the 200-250 ova laid, only about half hatched. I split the young larvae into four groups so that if disease should strike, there would be a better chance of saving at least some of them. All went well during the winter and spring and, in July 1974, the resulting F2 generation consisted of 80 typical examples and eight ab. *pallens*. Most of these specimens were rather small, and a number were crippled, including two *pallens*.

From the foregoing I think *pallens* is probably inherited as a simple recessive, but with the ab. gene weakening the strain and being sometimes lethal. If that be so, it would explain the small size of most of the specimens, and the fact that only about 10% *pallens* hatched instead of the expected 25%.

I attempted a pairing between two of the *pallens*, but no mating was seen, and of the few ova laid, none hatched. I also put two of the *pallens* females with three male *lanceolata* Shipp (which I had also been breeding), but again no pairings were seen, and what ova were laid, collapsed.

The ab. *lanceolata* stock (fig. 5) referred to above, was given to me as ova in July 1972 by the late Major A. E. Collier. Although ab. *lanceolata* has already been bred by a number of collectors, my results may nevertheless be of interest. The F1 generation consisted of about 40 specimens, all of which were typical and of normal size. Several of each sex were put into a breeding cage, and pairings were seen and about 400 ova were laid. After giving away to friends a number of the ova and larvae, I had left in the spring of 1974 about 180 larvae. These were divided into groups of 25-30, some being put on grass growing in pots and netted over, while others were put in an out-door wooden cage, in which were placed clumps of growing grass.

By the end of June, the F2 generation had started to hatch, and finally consisted of 112 typical examples and 38 *lanceolata*, which is exactly the 25% result expected in a simple recessive

aberration. There was considerable variation between individuals. Also, some of the females had most of the rings lanceolated, whereas the males were less extreme with often only a few rings affected.

I have now changed from using *Poa annua* as a foodplant when breeding Satyridae species, as I find this is very prone to heavy infestations of aphid and often dies off during the winter due to mildew. I now use a small creeping grass that grows in my garden up corners and around the edges of the lawn, etc. I do not know as yet what species of grass this is, but it has none of the above-mentioned disadvantages and is readily eaten by the larvae.

Silpha carinata Herbst — a Remarkable Re-discovery in the British Coleoptera

By DAVID R. NASH*

On 18th April, 1974, whilst sieving through a heap of damp straw on the edge of a wooded area in Wiltshire, some 20 km. from Salisbury, I discovered a single example of a black Silphid which when first observed on the collecting sheet I immediately assumed to be *Silpha tristis* Illiger. On tubing the insect, however, I saw that it did not agree with any British Silphid known to me. A careful search under stones and pieces of wood in the surrounding area failed to reveal any further specimens.

Upon returning home, I was able to run the insect down quite easily in both Reitter (1909), and Freude, Harde and Lohse (1971) to *Silpha carinata* Herbst—a determination subsequently confirmed by Mr A. A. Allen, who suggested that the species might possibly be mixed with, or standing as, *S. tristis* in one or two collections.

According to Freude, Harde and Lohse (*loc. cit.*), the distribution of *S. carinata* extends from mid-France through to Mongolia—in middle Europe it is apparently widely distributed but usually rare. Reitter (*loc. cit.*), although likewise stating that *carinata* is a rare insect, links it with mountain regions, but evidence from other authorities does not seem to indicate that it is a peculiarly montane insect. For example, Hansen (1968)—who provides an excellent figure of the beetle—notes that it is widespread but fairly rare in all the three main distribution areas of Denmark (*not* a mountainous country).

The three British species of *Silpha* on our present list are readily separated into two groups by means of the longitudinal keeling of the elytra, *tristis* being the only species possessing three very distinct equally raised keels, whilst *tyrolensis* Laicharting and *obscura* Linnaeus have three less distinct keels of which the outermost is clearly the strongest. Since *carinata* has three very distinct keels on each elytron, the only species with which it may be confused is *tristis*. The following table

* 266 Colchester Road, Lawford, near Manningtree, Essex.

Table 1

Character	<i>carinata</i>	<i>tristis</i>
Antennae	Longer — 8th joint long, bell-shaped; much longer than 9th.	Shorter — 8th joint not longer than 9th.
Thorax	<p>Anterior margin shorter, clearly emarginate behind head.</p> <p>Rather broadly flattened on disc, with side margins quite distinctly explanate. Base with two distinct, curved longitudinal depressions which originate approximately in line with the three elytral keels.</p>	<p>Anterior margin longer, scarcely emarginate behind head, evenly rounded to subtruncate.</p> <p>More arched (especially on disc) with side margins clearly less explanate. Base without distinct depressions.</p>
Elytra	<p>Sides clearly dilated, resulting in general outline appearing rather ovate. Disc distinctly convex and arched, quite noticeably raised above level of pronotum.</p> <p>Side margin at shoulder markedly explanate (very much as in <i>Phosphuga</i>), this margin being half as wide as the distance between the edge of the elytron and the innermost keel.</p> <p>Side margins distinctly explanate almost to apex. Bottom of explanate elytral side margin rather coarsely and closely pitted.</p> <p>Only middle keel extending almost to apex; this then abruptly reflexed to run parallel with the suture for approximately the last mm.</p> <p>Pre-apical callosity absent.</p>	<p>Sides only slightly dilated; general outline much more oblong.</p> <p>Disc less convex and arched, scarcely raised above keel of pronotum.</p> <p>Side margin at shoulder not markedly explanate, much narrower than the distance between the edge of the elytron and the outermost keel.</p> <p>Side margins much less distinctly explanate. Bottom of explanate elytral side margin with distinctly separated punctures, some of which tend to form into an irregular line.</p> <p>Both the middle and the inner keel usually reaching almost to apex, but the latter sometimes abbreviated like the outer one; middle keel not abruptly reflexed near apex.</p> <p>Pre-apical callosity weak but usually traceable.</p>
Size	Average size larger: 15-20 mm.	Average size smaller: 13-16 mm.

(based upon previously published keys and my own example of *carinata*) will serve to distinguish the two species.

(In addition to the characters given in the table, the scutellum in my example of *carinata* is punctured only in its middle part and is smooth and shining—particularly towards the upper corners. In all the *tristis* which Mr Allen and I have examined, the scutellum is wholly punctured and dull. This character does not appear to have been remarked upon previously, so that it may well prove not to be constant.)

Although the name *Silpha carinata* does not seem to have been included in any list of British Coleoptera for well over a century (Fowler (1889) making not even a passing reference to the insect), Stephens in his "Manual" (1839) synonymises the species named by himself as *Griesbachiana* with the *carinata* of Illiger. Despite the fact that Stephens omits the more important distinguishing characters of *carinata*, there can be little doubt that Stephens' insect is the true *carinata* because he contrasts his *Griesbachiana* with *tristis*, mentioning the inward curve of the long intermediate keel of his insect. (At one time there seems to have been some difference of opinion as to the correct authorship of the name *carinata*, but as far as I can ascertain all present-day authorities now attribute it to Herbst.) The only details which Stephens supplies concerning the occurrence of the beetle are: "Carcases, Winchester: 6". There is a dagger preceding the name indicating that Stephens did not possess an example in his collection. In his introduction to this work, Stephens lists 114 species (including *Griesbachiana*) which he needed to complete his collection, and which he believed to be indigenous. Of these 114 insects, 63 are stated to have been included on the basis of a unique record. Mr Allen has kindly consulted Stephens' "Illustrations" (1830) on my behalf. The information given there concerning *Griesbachiana* is as follows: "Winchester—Mr A. Griesbach. The only specimen I have yet seen; it is in the collection of the British Museum". (Mr Allen has looked for the specimen in the now very small residue of the old "B.M. Coll." at the end of the Power collection, but like many other historic specimens it is, apparently, no longer extant.) It would seem, therefore, that only one example of *carinata* has previously been taken in this country.

The discovery of a second British example after an interval of probably well over 150 years is certainly quite remarkable. Had the insect been taken on the coast, the possibility of its having been imported could not have been ruled out until other specimens indicating a breeding colony had been discovered. The exact locality where the beetle was found is well over 30 km. inland, however, and is some distance from a major road. In addition, I have been able to ascertain that the straw in which the insect was discovered had been grown on the same estate. What is especially noteworthy is the fact that Mr Griesbach's specimen and my own were taken in quite close proximity in a relatively underworked area of the country. That the species has not been found in the adjoining much more well-worked areas of the south and south-west seems to indicate an extremely localised and rare species.

Available data suggests that most Silphidae pass the winter in the adult stage. In North Germany, Heymons *et al.* (1926-33) found that spent adults of *S. carinata* died during July and August just when the new generation was emerging to replace them. They also discovered that *carinata* was the only British *Silpha* (for it must surely now be re-instated on our forthcoming Check List) which accepted only fresh flesh, the other three all developing and reproducing quite successfully when supplied with either animal or plant material. This indicates that *carinata* might prove to be predacious, thus placing it in the same broad category as *Xylodrepa*, *Phosphuga* and *Ablattaria*. Bearing this information in mind, I hope during the coming autumn and spring to try to secure further evidence of the occurrence of *carinata* in the locality, not only by further random searching among straw, under stones, and at roots, but also by utilising pitfall traps baited with fish or local carrion.

Acknowledgements

I should like to thank the owner and the manager of the estate upon which *Silpha carinata* was re-discovered for kindly giving me permission to study on their property. I am also grateful to Mr P. Horton of the Nature Conservancy for originally providing me with a guided tour of the study area and for ascertaining that the straw containing the specimen was produced on the estate. I thank my friend Mr C. Barham for his patient help with the German texts and for testing the separation table. Finally, I am most sincerely grateful to Mr A. A. Allen for confirming my original determination, checking the collections at the British Museum (Nat. Hist.) and obtaining details from Stephens' "Illustrations", and for reading the original manuscript and suggesting improvements.

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The Scarce Swallow-tail: *Iphiclides podalirius* (L.) in Britain

By R. S. WILKINSON, Ph.D., F.L.S., F.R.E.S.*

I: The evidence before Haworth

There has been considerable debate about what relation *Iphiclides podalirius* (L.) has to the fauna of the British Isles. Many records of the capture of adults of the "Scarce Swallow-tail" in Britain leave at least one fact beyond question: specimens have been taken within the area. Although there can be little doubt about this, the question of their origin remains. The various replies are familiar to every serious student of the British Lepidoptera; they have ranged from the hypothesis that *podalirius* is native to England, to the dubious insistence that records have been either mistaken or based on deliberately introduced specimens. The present informed opinion seems to be similar to that of Howarth (1973), who suggests that the species "has been but rarely recorded in Britain. The origin of these specimens will remain a mystery but it seems most unlikely that this species was ever resident here. In the past it was included in several books as a resident but few if any specimens survive from that period. However, there are a few authentic records which justify the species' inclusion. . . ." Howarth mentions a number of captures, all of which will be discussed in course.

Within this tolerant climate of opinion, it would appear to be a propitious time to survey the evidence for occurrences of *podalirius* in Britain once more. In 1965 Mr. J. M. Chalmers-Hunt and I began collecting references to *podalirius* in the appropriate literature; I concentrated on the period before 1850 and he searched for later observations and opinions. Mr. Chalmers-Hunt kindly turned over his voluminous notes to me in 1966. Inspired by his research, I have since added some later references to those furnished by him. The following paper, which will appear in parts of differing length, will examine the references to *podalirius* in Britain and attempt an interpretation from the available data, including the opinions of several eminent contemporary students of the British and Continental fauna.

The first printed work which can be said to deal at any length with British insects is a sixteenth-century book which was apparently not published before 1634. It is a curious accretion which began as a compilation of notes by Conrad Gessner (1516-65), certainly for a volume of his *Historia Animalium* which he did not live to finish. Gessner's notes were sorted and greatly amplified by his friend, the Englishman Thomas Penny. The resulting materials were bequeathed to Thomas Moffet, who similarly added data and completed the final manuscript in 1589 (British Library, Sloane MS. 4014). Moffet died in 1604 and the manuscript was eventually published by Theodore Mayerne in 1634. The lengthy story of the *Insectorvm sive Minimorum Animalium Theatrvm* has been traced by Raven (1947) and Lisney (1960).

* The Library of Congress, Washington, D.C. 20540.

The *Theatrvm* includes a woodcut and description of the butterfly later named *podalirius*; it is clearly differentiated pictorially from *Papilio machaon* L. (an account and illustration of which appears on the same page), and a less conclusive text follows: "non multum colore abludit, nisi quod internarum alarum exphyles, totaque ipsarum extima lacinia glastiva sit; uti & tres illi spintheres, quos sub concava illarū parte vides depictos". (The 1658 translation of the *Theatrvm* renders the Latin as "not much unlike in colour [from *machaon*], but that the extuberances, and the outmost border of the innermost wings is sky or woad-colour; as also those three taches which you see painted under the hollow part of them".) But despite the considerable contribution by English entomologists, the insect is not specifically stated to be British. Indeed, the *Theatrvm* was meant to be a general treatise on insects; for example, the Nearctic *Papilio glaucus* L. is depicted and described on the facing page, from a drawing by John White (Wilkinson, 1973).

The first halting attempt at a British list, Christopher Merret's *Pinax, Rerum Naturalium Britannicarum* (1666) makes no mention of *podalirius*, but Merret does not include *machaon* either. With the great attempt at entomological elucidation begun in England by the elderly John Ray, James Petiver, Samuel Dale and others at the end of the seventeenth century, *machaon* entered the literature (it was named "The Royal William", after William II, who reigned from 1689 to 1702), and no less a naturalist than Ray was the first to refer to *podalirius* as a possible addition to the native list. After his description of the insect in the posthumously published *Historia Insectorum* (1710), Ray noted that "in *Etruria* invenimus, atque etiam, ni male memini, in *Anglia*". So he had definitely seen *podalirius* during his 1664-65 residence in Italy with Francis Willughby, and was depending on his memory for its occurrence in England. The English observation (if Ray's memory was correct) may well have been made after the Italian one, for Ray did not really begin an earnest and determined study of insects until about 1690 (Raven, 1950). Because of these efforts, and the fact that Ray's new interest was well known to other naturalists, it is at least possible that he might have seen one of the occasional specimens of *podalirius* which have been found in England.

Yet Petiver, who eventually mentioned and figured all the British Rhopalocera which he had seen in the field and in collections, does not refer to *podalirius* as British in either his manuscripts or his publications, and he had ready access (as we know from his correspondence) to Ray's specimens. Petiver did include a *podalirius* on Plate 133 of his *Gazophylacii Naturæ & Artis*, but it was depicted among a group of "Papiliones Etruriæ" from his correspondent Bruno Tozzi, and the brief undated catalogue to Plates 101-155 cites Ray's description but does not mention the insect as other than Italian. Petiver did not include *podalirius* in the culmination of his study of the English butterflies, *Papilionum Britanniae Icones, Nomina &c*

(1717), so we can assume from all this that an English specimen of *podalirius* was unknown to Petiver; that such a specimen was not in Ray's collection in the closing years of his life; and that the first reference to *podalirius* as possibly seen in England is conjectural.

After Ray's unsubstantiated reminiscence, *podalirius* vanishes from the British literature for a long period. The chief writers of the early and mid-eighteenth century, Eleazar Albin, Benjamin Wilkes and Moses Harris, do not mention it. But in John Berkenhout's *Outlines of the Natural History of Great Britain and Ireland*, I (1769), *podalirius* appears for the first time as definitely on the British list. Berkenhout says that "In shape and colour" it is much like *machaon*, "but the yellow is paler. . . . Rare, in woods".

By 1769 English naturalists knew a great deal about their lepidopterous fauna, and at first glance it is curious that Berkenhout should be the first to publish a definite report of *podalirius*. He was by no means primarily an entomologist, although after an unlikely beginning he acquired a good and comprehensive knowledge of natural history. Berkenhout (ca. 1730-1791) was born in England and brought up to a commercial career. He spent some years in Germany, toured the Continent, became an officer in a Prussian military regiment, later enlisted in the British service, and left it to study medicine at Edinburgh, finally taking his M.D. at Leyden in 1765. While a student he published a very popular and useful Linnean botanical lexicon, *Clavis Anglica Linguae Botanicae* (1764), which went through several editions. He pursued a varied career, writing on a number of topics and serving as a diplomat during the American War for Independence. His *Outlines of Natural History* was successful; a second volume was printed in 1770 and a third in 1772, and three editions appeared (Lisney, 1960). Berkenhout had ample opportunity to observe *podalirius* in Europe, and he was familiar with the appropriate literature. His statement "rare, in woods" is quite specific and was certainly not derived from Ray's conjecture. It is quite possible that Berkenhout was lucky enough to see a specimen of *podalirius* taken in England. Indeed, the subsequent history of the insect has demonstrated that due to its extremely infrequent occurrence it has been observed by chance and not necessarily by well-known entomologists. At any rate, although a specimen does not remain (and relatively few eighteenth-century entomological specimens *do* remain), Berkenhout's report is at least as valid as some of those from the nineteenth century, and so much attention has been given to it because it was the basis for the initial belief that *podalirius* was a native species.

In his *Catalogue of British Insects* (1770), John Reinhold Forster included *podalirius* on the authority of Berkenhout. Moses Harris did not mention the species in his very popular handbook, *The English Lepidoptera* (1775), probably because in a long career in the field he had never encountered it. But in *The Aurelian's Vade Mecum* (1785), Matthew Martin hopefully

included *podalirius* in his alphabetical list of foodplants of English species, as feeding on cabbage (which it does not do), and the mistake will figure in the second part of this paper.

In the first really extensive survey of British entomology, Edward Donovan included *podalirius* as a native species, again on the authority of Berkenhout. In the fourth volume of *The Natural History of British Insects* there is a superb coloured plate of *podalirius*, which Donovan called the "Scarce Swallow-tail". He described the larva, pupa and imago, explaining that "We have received the Butterfly from North America" (incorrect; he had obviously been sent *Graphium marcellus* [Cramer], which looks at least something like *podalirius*) "as well as from Germany" (undoubtedly correct); "it appears to be a native of most parts of the European Continent, though perhaps not frequently found. Berkenhout is the only writer who has described it as an English species; he says it is rare (in this country), found in woods".

In the same year and in another very influential work, William Lewin's *The Insects of Great Britain* (1795), *podalirius* was given a coloured plate, superior to that of Donovan. Lewin described the metamorphosis, indicating that "This elegant species of butterfly is said to have been caught in England, and therefore I thought it not improper to give a figure of it". He explained that the imago was drawn from a specimen taken by Sir James Edward Smith, near Paris, and the immature stages were from "Roesel" (*i.e.*, Roesel von Rosenhof, *Der monatlich-herausgegebenen Insecten-Belustigung*, 1746-61).

Thus, spurred on by the well-received work of Donovan and Lewin's similarly popular book, British aurelians yearned to capture *podalirius*. However, at the beginning of the nineteenth century the actual evidence for the occurrence of *podalirius* in England was scanty indeed; Ray's statement had been forgotten, and every reference to the insect as native was ultimately derived from Berkenhout. In his publications and correspondence, Adrian Hardy Haworth was the next British entomologist to deal with *podalirius*, and he was to provide the first specific data.

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Notes and Observations

HADENA CAESIA D. & S. AND OTHER LEPIDOPTERA IN ISLAY IN 1975.—I spent a week, 26th July to 2nd August, in the glorious island of Islay. My main quarry was the larvae of *Hadena caesia mananii* Gregson, which was discovered here a few years ago by Dr R. E. M. Pilcher. In spite of very hard work by day and night, I came away with only six larvae, as I thought, and no moths, for which I was apparently too late. Later on, however, I am glad to say that over a dozen others were found in my bags of foodplant. As little has been written on this island I add a list of lepidoptera seen during my visit.

Pieris napi L., *Aglaia urticae* L., *Nymphalis io* L., *Eumenis semele* L., *Maniola jurtina* L., *Coenonympha pamphilus* L., *Lycaena phlaeas* L., *Polymmatas icarus* Rott., *Pheosia gnoma* F., *Ptilodon capucina* L., *Ochropacha duplaris* L., *Arctia caja* L., *Spilosoma lubricipeda* L., *Euxoa tritici* L., *Lycophotia porphyria* D. & S., *Standfussiana lucernea* L., *Amathes xanthographa* F., *Diarsia mendica* D. & S., *Xestia c-nigrum* L., *Anaplectoides prasina* D. & S., *Noctua comes* Hb., *N. pronuba* L., *M. fimbriata* Schreb., *N. ianthina* D. & S., *Lacanobia oleracea* L., *Hadena rivularis* F., *H. confusa* Hufn., *A. caesia* Gregs., *Cerapteryx graminis* L., *Cleoceris viminalis* F., *Luperina testacea* D. & S., *Oligia fasciuncula* Haw., *Mesapamea secalis* L., *Apamea monoglypha* Hufn., *A. lithoxylea* D. & S., *A. crenata* Hufn., *A. remissa* Hb., *Phlogophora meticulosa* L., *Amphipoea lucens* Frey, *A. crinanensis* Burrows, *Hydraceia micacea* Esp., *Celaena haworthii* Curtis, *C. leucostigma* Hb., *Naenia typica* L., *Photodes pygmina* Haw., *Mythimna impura* Hb., *M. pallens* L., *Stilbia anomala* Haw., *Diachrysia chrysitis* L., *Autographa gamma* L., *A. pulchrina* Haw., *Acasia viretata* Hb., *Eulithis pyraliata* D. & S., *Thera obeliscata* Hb., *Xanthorhoe munitata* Hb., *X. montanata* Borkh., *Venusia cambrica* Curt., *Epirrhoe alternata* Mull., *Cosmorhoe ocellata* L., *Hydriomena furcata* Thunb., *Eupithecia pulchellata* Steph., *E. venosata* F., *E. gooseniata* Mab., *E. nanata* Hb., *Gnophos obscuratus* D. & S., *G. obfuscatus* D. & S., *Crocallis elinguaris* L., *Hylaea fasciaria* L., *Biston betularia* L., *Alcis repandata* L., *A. jubata* Thunb.—AUSTIN RICHARDSON, Orchard Cottage, Box, Stroud, Glos. GL6 9HR.

West Sussex to Wester Ross in 1974

By T. J. RADFORD*

(concluded from page 252)

The following three nights were excellent, and on the 8th a total of 91 species entered the garden trap. Some of the more interesting species were *Apamea scopolacina* Esp., *Cosmia pyralina* Denis and Schiff., *Lithosia complana* Linn., *Hydrelia flammeolaria* Hufn., *Hyloicus pinastri* Linn., *Harpyia bifida* Brahm., *Tethea ocularis* Linn., *Apatele leporina* Linn. and *Scopula imitatoria* Hufn. From the 10th to 17th, several interesting species put in their appearance including *Euphyia rubidata* Denis and Schiff. on the 13th; *Apamea ypsilon* Denis and Schiff. on the 14th; *Dyoterygia scabriuscula* Linn., *Hemistola immaculata* Thunb. and *Deuteronomos erosaria* Denis and Schiff. on the 16th.

On the 17th, I took my trap to Ambersham Common. It became very damp after midnight and only 42 species came. The most numerous species was *Lycophotia varia* de Vill., closely followed by *Pachycnema hippocastanaria* Hübn. and *C. mesomella*. Other species of interest were *Pseudoterpna pruinata* Walker, *Semiothisa alternata* Denis and Schiff., *Mala-cosoma neustria* Linn., *Sterrrha sylvestraria* Hübn., the yellow variety of *Lithosia griseola* Hübn. and *Sterrrha straminata* Borkh.

On the 18th, I saw *Macroglossum stellatarum* Linn. at Buddleia in Rewell Wood. From the 18th to 25th there were some very good nights and I was kept busy at my garden trap which contained 91 species on the 19th. During this period I took *Tethea duplaris* Linn., *Pyrrhia umbra* Hufn., *Leucoma salicis* Linn., *Sterrrha emarginata* Linn., *Semiothisa alternata* Denis and Schiff., *Pseudoips prasinana* Linn., *Perizoma bifaciata* Haw., *Eupithecia haworthiata* Dbldy. and many others. I was rather disappointed that there were no immigrants present.

A daytime visit to Ambersham Common on the 21st proved well worthwhile. In addition to finding a colony of *Plebejus argus* Linn., I noted the only *Eumenis semele* Linn. I have seen in West Sussex. Among other butterflies were *Argynnis paphia* Linn. and *Limenitis camilla* Linn. Several *Euchoeca nebulata* Scop. were taken amongst some alders.

On the 26th I was again at Ambersham Common with moth trap and generator. This time I took 70 species. It was a very enjoyable night and I was kept busy. Notable species were three *H. pinastri*, three *Lithacodia fasciana* Linn., two *Agrotis vestigialis* Hufn., *Lygephila pastinum* Treits., three *Leucania pudorina* Denis and Schiff., *Lasiocampa quercus* Linn., *Euphyia unangulata* Haw., *Cosymbia albipunctata* Hufn., *Eupithecia goossensiata* Mabilie and *P. bifaciata*. *P. hippocastanaria* was still common.

At Houghton Forest on the 27th, I netted at dusk *Schrankia taenialis* Hübn., and shortly afterwards captured the first of four *Nola albula* Denis and Schiff. to come to my light. I recorded in all 207 moth species in Sussex during July.

* Bramblings, West Walberton Lane, Walberton, Arundel, Sussex.

On the 30th I set off with my family towing the caravan on the long journey up to the highlands of Scotland, via Hadrian's Wall. The first stop was Clumber Park in Nottinghamshire, where I hoped to renew old acquaintances but torrential rain prevented this. Having a great dislike of official camping sites, the second halt on the 31st was at a brand new picnic area near Tow Law in County Durham. This was inside a small wood and seemed quite suitable for the moth trap. The night was quite mild with drizzle at first, then torrential rain, but this did not seem to deter the moths; 53 species were taken and were quite a mixed bag. Some, such as *Hadena thalassina* Denis and Schiff., *Plusia pulchrina* Hübn. and *Procus fasciuncula* Haw. had long since finished in the South, whereas others, such as *Amathes sexstrigata* Haw., had not yet appeared there. Several northern species, such as *Plusia bractea* Denis and Schiff. and *Lygris populata* Linn., were also present.

After satisfying the childrens' urge to walk on Hadrian's Wall, we stayed the night just inside a large wood somewhere near Ecclefechan in Dumfriesshire. It was very damp, and the lush vegetation vouched well for the heavy rainfall. The light brought in 44 species including *Alcia jubata* Thunb., *L. pyraliata*, *L. populata* (typical form and a dark form), *Thyatiris batis* Linn. and *Tethea duplaris* Linn.

The 3rd August found us parked on the shingle of Loch Lubnaig in Perthshire. During the day I managed to capture a single *A. selene* and at night ran the trap on the old railway line near the Falls of Leny. It was not a good night as there was competition with the moon, but amongst others I took *Plusia bractea* Denis and Schiff., *Venusia cambrica* Curtis, *Bombycia viminalis* Fabr., *Parastichtis suspecta* Hübn., *Apamea furva* D. & S. and *Diarsia mendica* Fabr. The last named seemed particularly late.

On the 4th August we arrived at a very isolated spot by the side of Loch Arkaig in the county of Inverness. I did not operate the trap on the first night, but went out with a torch examining flowers, etc. *Colostygia olivata* Denis and Schiff. was abundant and I also took *Lyncometra ocellata* Linn. and *Apamea crenata* Hufn. Both forms of the latter species were later taken in good numbers both here and further north, and it appears to have a completely different season here from elsewhere. I also netted a small moth that turned out to be *Schrankia costae-strigalis* Steph., which according to South (1961) does not appear to have been noted in the Highlands.

The 5th August was an absolutely perfect day with unbroken sunshine and a temperature in the mid 70s. F. Whilst my children were swimming in the loch I looked for insects. Several large fritillaries were seen but not captured. *Erebia aethiops* Esp. was very common and amongst these I captured a tawny specimen, quite unlike the normal form. I thought at first that it was a different species but it now appears to be an unusual variety. There were many large hawking dragonflies around and one I managed to net turned out to be *Cordulegaster*

boltonii Don. I also noted that unpleasant looking Tachinid fly *Echinomya grossa* Linn.

I operated the trap in the evening, braving the midges; 33 species were taken including *Plusia interrogationis* Linn., *P. bractea*, *Celaena leucostigma* Hübn., *Craniophora ligustri* Denis and Schiff., *Lygris testata* Linn. and *Eupithecia expallidata* Dbldy.—this last named being apparently very rare in Scotland.

Rain came on the 6th, but the evening was ideal for moths—and midges! As soon as one set foot outside the caravan one's hands and face literally turned black. However, it was too good a night to miss, so plastered with repellent, I switched on the light and took 42 species. The prize was a single *Apamea exulis* Lef. subsp. *assimilis* Dbld. Additional species to those of the previous night were *V. cambrica*, *Diarsia dahlia* Hübn., *Plemyria rubiginata* Denis and Schiff., *Cyrrhia icteritia* Hufn. and *Rivula sericealis* Scop. which does not appear to have been noted previously in the Highlands.

The following day we regretfully moved on, driven out by *Culicoides impunctatus* and its allies. Our new pitch was near the tiny village of Sallschy on the shores of Loch Long in Ross-shire where we stayed for almost a week. Although the weather was pleasant by day, few nights were suitable for mothing either because of wind or cold. The 7th was the best night when over 40 species were taken including *S. costaestrigalis*, *Eumichtis adusta* Esp., *Bombycia viminalis* Fab. and two very late *Xanthorrhoe montanata* Denis and Schiff.

One non-entomological highlight of the week was when the whole family made an energetic climb up to see the Falls of Glomach with their splendid single drop of over 300 feet.

Further north we had to stay near Gairloch for a couple of days whilst the exhaust was welded back on to the car by a dour Scotsman whose first smile was when he accidentally set fire to the car boot. Luckily the only damage was to the boys' plastic football. We went as far north as Inchnadamph in Sutherland, where I hoped to collect on the limestone of the nature reserve. As we obtained permission, the most violent wind sprang up and the night was wild and stormy. Reluctantly, we decided to head for home.

August 20th found me at Ambersham Common again, but it was a poor night. *P. hippocastanaria* was still on the wing but *Euxoa tritici* Linn. was now the most numerous species. *C. ambigua* was now making its second and more usual appearance. Other species of note in late August were *Scopula conjugata* Borkh. on the 21st and *Acasis viretata* Hübn., *Mormo maura* Linn. and *C. albipunctata* on the 23rd.

A final trip to Ambersham Common on the 25th, however, produced a nice surprise in the form of *Coenobia rufa* Haw. along with three *Anarta myrtilli* Linn. Altogether 113 species of moths were noted in Sussex in the latter third of August. There was little evidence of migration and the maximum number of *P. gamma* in the trap was six compared with the swarms of 1973.

The first week of September came in with violent storms and torrential rain. This was followed by a calm and rather mild period which was quite productive, especially for butterflies. On the 6th the first *Vanessa cardui* Linn. of the season was seen in Arundel Park. On the 9th, a vast area of buddleia in Revell Wood was visited and on the few remaining blooms I counted nine *N. io*, 15 *A. urticae*, five *V. cardui* and six *V. atalanta*. The last named species was generally scarce this season, being usually seen in ones and twos.

On the 10th, there were plenty of butterflies in Arundel Park including *A. agestis*, fresh specimens of *Maniola jurtina* Linn. and two *L. phlaeas*. This last species has been scarce throughout the year. Good numbers of the hawk dragonfly *Aeshna mixta* Latr. by the River Arun suggested an influx of migrants.

On the night of the 19th, one *Agrotis ipsillon* Hufn. and *P. porphyria* Denis and Schiff. turned up at the trap, strengthening the evidence of migration. On the 10th, a male *Ennomos autumnaria* Wernb. turned up at the garden trap. The 11th was a very mild night and 47 species came to the trap with 23 *P. gamma* (which were certainly migrants), though two *Eupithecia phoeniceata* Rambur were probably local as a row of *Cupressus macrocarpus* lines my neighbour's drive. Two more *E. autumnaria* were present and this species occurred regularly until the 20th. Another interesting species was *Epione repandata* Hufn.

On the 13th, I took my only *Asphidalia diluta* Denis and Schiff. of the year, and the 14th was another good night with two more *E. phoeniceata*, six *A. ipsillon*, 53 *Amathes c-nigrum* Linn., but only eight *P. gamma*. *Antitype flavicincta* Denis and Schiff. occurred on the 19th.

September continued with rapidly declining numbers of moths. Many of the autumn species were late to appear and numbers were low. *Agrochola lychnidis* Denis and Schiff. did not appear until the 23rd. *Omphaloscelis lunosa* Haw. appeared on the 11th and reached a peak of 114 on the 20th—less than half the numbers for 1973.

October followed the general trend of the year producing little that was unusual. *Lithophane leautieri* Boisd. appeared on the 19th and reached a maximum of seven on the 15th compared with 21 on the 6th in 1973. Occasional specimens occurred until 30th November. The only other interesting species were *S. costaestrigalis* and *Lithophane semibrunnea* Haw. on the 15th, followed by *Dasycampa rubiginea* Denis and Schiff. on the 24th.

November began with a period of mild damp weather and some good catches were made. *Eupsilia transversata* Haw. and *Conistra vaccinii* Linn. were far more numerous than in 1973. On the 2nd I took my M.V. trap to Houghton Forest and *Ptilophila plumigera* Denis and Schiff. was amongst 19 species captured. Two *Poecilocampa populi* were also taken. On the 6th I took a single *Brachionycha sphinx* Hufn. The common autumn moths continued to occur until the end of the month and on 3rd December I put away my trap to await the 1975 season.

"Lady" Glanville Revisited

By R. S. Wilkinson, Ph.D., F.L.S., F.R.E.S.*

Almost a decade ago, research in the English naturalist James Petiver's papers (British Library, Sloane MSS.) resulted in the discovery of a considerable amount of information concerning the entomological activities of the previously little known "Lady" Glanville of *Melitæa cinxia* fame (Wilkinson, 1966). Glanville, who was a "Lady" only to the noun-capitalising compositor of Moses Harris' *The Aurelian* ([1758-]66), proved to be a friend of Petiver and a knowledgeable entomologist who was one of the pioneers in the collecting and rearing of British insects, especially Lepidoptera. At the time, my only clue to her given name (which, in the letters then known to be among Petiver's papers, was signed only as "E") was Petiver's reference to her as "Elizabeth" in his *Musei Petiveriani Centuria Nona & Decima* (1703). Despite an extensive search of genealogies and parish records, I was not able to specifically identify or trace the lineage of an appropriate "Elizabeth" Glanville.

My friend Dr. William S. Bristowe then took up the challenge, and suggested from the results of his subsequent research that Petiver was guilty of a slip of the pen; Glanville's name was *Eleanor*. Bristowe (1967) discovered ample biographical data about Eleanor Glanville, and his paper hardly leaves doubt that it was his subject who corresponded with Petiver at the beginning of the eighteenth century. During a recent examination of fragments in the volumes of Sir Hans Sloane's manuscripts, I found an undated and badly damaged letter in Sloane 4066 (349r) which was probably written to Petiver, and which furnishes a final bit of evidence to support Bristowe's argument. It has entomological content, is signed with a full name, and concludes the case for Eleanor Glanville of Tickenham Court, Somerset. Part of the left portion of the letter is missing, and loss of text is indicated with brackets:

"Sr

I have inquired about your Pictures and you may have them when you please [t]o go for them, at mr Sambars Chambers [] Lyons Inn ye next dore to ye Arches [] I would desire you to send me ye key [] took out of my Closet dore ye room [?bei]ng lett and it is uery much wanted [] ye Copy of the sermon you Read [] about your insects, be pleased [?to se]nd them as soon as you can by ye [] post and you will oblige your friend and saruant

Elianer Glanuill"

References

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* 228 Ninth St. N.E., Washington, D.C. 20002.

LETTER TO THE EDITOR

From Dr M. R. Young

Dear Sir,

It is with something more than impatience that I read some of the articles in the *Entomologist's Record*, which catalogue the year's captures of rarities as if there was virtue in collecting as many entomological scalps as possible. Surely the thesis is proven that a man in possession of a motor car and several mercury vapour traps can visit the classic localities and take "good" series (*sic.*) of our rarities within one calendar year. Presumably they are now aiming to beat the track record but, alas, do not advance our knowledge one jot. As Ford (1955, *Moths*, p. 127) says "the tendency to go to some locality celebrated for rare insects merely to find them is pernicious if we gain no fresh information by this means".

I can imagine nothing more horrifying (or less excusable) than visiting a famous site to add my light to those of other collectors (can we call them entomologists?); no wonder we have a dubious reputation as conservationists.

I am fully alive to the value of visiting a known locality to study the habitat of a species so as to search for it more effectively elsewhere; and yes, I admit to taking a few specimens of rarities when I come across them, so as to have representative voucher specimens, but I would be ashamed to admit to some of the "triumphs" of collecting prowess reported in our journals. If we all applied the same zeal to investigating new areas, breeding puzzling species or studying particular areas in depth that some collectors apply to their frantic rush to (say) Dungeness or the New Forest, then we would be doing the moths and ourselves much better service. — M. R. YOUNG, Department of Zoology, University of Aberdeen, Tillydrone Avenue, Aberdeen, AB9 2TN. [We much appreciate our correspondent's point of view and would be interested to hear from other readers on this subject. — Editor]

Notes and Observations

CNAEMIDOPHORUS RHODODACTYLA (D. & S.) IN WEST SUSSEX. — On 26th July, 1975 the m.v. light was being operated in some woodland in West Sussex. There was a low turnout of highly predictable moth species except for one exciting arrival, a male *C. rhododactyla* (D. & S.). This appears to represent an extension of its old range as given by both Meyrick and Beirne. The latter states that it is probably extinct except in single localities in Kent, Essex and Huntingdon, while it had been recorded from Middlesex, Surrey and Hertfordshire. I know that it was to be found still in more than one place in Essex a few years ago, but have no knowledge of the other counties. I shall be interested to investigate the extent of the colony by searching for larvae in 1976. — R. FAIRCLOUGH, Blencathra, Deanoak Lane, Leigh, Surrey.

COLEOPHORA TRIGEMINELLA (FUCHS) AND *C. CORACIPENNELLA* (HUBN.) IN N. KENT. — On 10th June, 1974, I bred a specimen of *C. trigeminella* (Fuchs) from its distinctive red-brown trivalved case, taken off apple in May 1974, at a locality in N. Kent. This appears to be the first time that this species has been observed in Britain since 1906, when A. Sich bred it from Putney and Brentford, Middlesex.

On 18th June, 1975, I bred a specimen of *C. coracipennella* (Hübner) from a case taken off the same apple tree, in May 1975. Nothing seems to be known about the status of this species in Britain, except that it is the true *nigricella* (Steph.). Stephens recorded it as apparently not uncommon at Darenth Wood and near Dover. It is noteworthy that the case from which I bred my specimen was not like the neat brown case of *C. cerasivorella* Packard which is commonly found on hawthorn, but more like the case of *C. serratella* (Linn.), being a little more untidy. However, it differs from all my cases of *cerasivorella* and when seen end-on, the valve forms a Y shape. In the other two species, this character is the other way up. The genitalia of these species as well as all but twelve of the other British Coleophoridae appear in Insektenfauna DDR: Lepidoptera-Coleophoridae by H. Patzak, *Beiträge zur Entomologie*, 24 (5-8), 153-278. — S. E. WHITEBREAD, 2, Twin Cottage, Grove Farm, Higham, near Rochester, Kent.

APATELE EUPHORBIAE VAR. MYRICA GN. — In early August 1975 whilst on holiday in Co. Galway, Eire, a fresh and a not so fresh specimen of this moth visited my mercury vapour light trap. Since the text books state that this species flies in May and June, how can its emergence in August be explained? — J. N. d'ARCY, Monkswell Cottage, Edington, Westbury, Wiltshire.

HEMARIS FUCIFORMIS L. IN HAMPSHIRE. — I have not yet had an opportunity of seeing *The Butterflies and Moths of Hampshire and the Isle of Wight* (B. Goater, 1974) and so was not aware of the scarcity of *H. fuciformis* in Hampshire until I read L. W. Siggs's note (*Ent Rec.*, 87: 254).

In August 1965 I was camping just outside the Rhinefield enclosure, near Brockenhurst, and found two half-grown larvae of this species feeding on honeysuckle. One of them I subsequently reared successfully. — M. R. YOUNG, Department of Zoology, University of Aberdeen.

OBSERVATIONS ON *AGLAIS URTICAE* L. AND *VANESSA CARDUI* L. AT SLAPTON SANDS, S. DEVON, IN 1975. — Peak numbers of *A. urticae* feeding on valerian during August were: 38 on the 18th; 68 on 21st; 93 on 22nd; 107 on 24th; 121 on 26th; 101 on 27th; 47 on 28th. Total for month, 617. *V. cardui* total for August was 49, with 15 on 26th. — H. L. O'HEFFERNAN, 3, Coombe Meadows, Chillington, Kingsbridge, S. Devon.

RHODOMETRA SACRARIA L. IN THE ISLE OF MAN IN 1975. — A male specimen of the pink form of the Vestal Moth (*R. sacraria*), was attracted to my m.v. light trap at Andreas, on 6th September. — K. G. M. BOND, 32, Hildesheim, Sedan Strasse 30, W. Germany.

COLEAS CROCEUS GEOFF. IN CO. WEXFORD AND CO. CORK IN 1975. — My brother, J. V. P. Bond, saw about 40 *C. croceus* in a field at Tintern Abbey, near Fethard, Co. Wexford, on 5th August. At Harbour View, near Kinsale, Co. Cork, on 7th August, I myself saw two *croceus* flying over the sandhills there, and a further one about a mile or two distant. — K. G. M. BOND, 32, Hildesheim, Sedan Strasse 30, W. Germany.

AUTOGRAPHA GAMMA L. AND NOMOPHILA NOCTUELLA D. & S. IN S. DEVON IN 1975. — *A. gamma* totals are: May 8th-31st (m.v. trap in use 24 nights), nil; June (30 nights), 33; July (30 nights), 129, with 68 on 31st; August (30 nights), 476, with 93 on 1st, 41 on 5th and 52 on 13th; September 1st-4th (4 nights), 33. Total for May 8th-Sept. 4th is 671. *N. noctuella* totals are: May, nil; June, nil; July, 3; August, 58; Sept., 5. Total for May 8th-Sept. 4th, 66. — H. L. O'HEFFERNAN, 3, Coombe Meadows, Chillington, Kingsbridge, S. Devon.

AUTOGRAPHA BRACTEA D. & S. (LEP.: NOCTUIDAE) IN SOMERSET. — Mr R. F. Bretherton's reference to the capture of the above species in Worcestershire prompts me to record that on the 4th July this year I took a fine male *bractea* at light in the woods above Box, five miles east of Bath. It would appear that this insect is spreading southwards faster than we think. — G. S. WOOLLATT, Leigh, Little Norton, Stoke-sub-Hamdon, Somerset, TA14 6TE, 22.x.1975.

HYLES GALLII ROTT. IN COUNTY DURHAM IN 1975. — On the morning of the 12th August there was a female Bedstraw Hawk here in my light trap. It was a good specimen except for a small imperfection on the tip of one forewing. It had been a warm muggy night and the trap was very full of many common species. — Lt. Col. R. B. HUMPHREYS, Peppermires Cottage, Brancepeth, Co. Durham.

MYTHIMNA LOREYI DUPONCHEL IN CORNWALL AND THE ISLES OF SCILLY IN 1975. — I was lucky enough to take a male of the Cosmopolitan in South Cornwall on 6th September, having heard of four others during the previous week. On my arrival in Scilly I was greeted by two more males on 8th September, and two females on 10th. Sadly, both refused to lay. The weather then turned rough for the rest of my stay, or who knows what might have happened. — AUSTIN RICHARDSON, Orchard Cottage, Box, Stroud, Glos.

TEMPORARY RESIDENCE OF MYTHIMNA LOREYI (DUPONCHEL) IN S.W. IRELAND WITH A NOTE ON THE OCCURRENCE OF OTHER MIGRATORY LEPIDOPTERA. — Between 5th September and 8th October, 1975, 14 specimens of *Mythimna loreyi* Dup. were taken in a m.v. light trap situated at Fountainstown, Co. Cork. The relatively long period of time over which the captures were made, the fact that winds were not favourable for migration during the period, and not least the unprecedented numbers taken, all point to the specimens being locally bred. A female arriving in S.W. Ireland in early July would, under the very warm conditions prevailing during the summer of 1975, have produced offspring of imagines by early September.

Other migrant species of Lepidoptera recorded from the light trap were: *Trichoplusia ni* Hübn., two (26th August, 8th September); *Mythimna unipuncta* Haw., three (4th-6th November); *Autographa gamma* L., 33; *Spodoptera exigua* Hübn., one (23rd August); *Nomophila noctuella* D. & S., 27; *Udea ferrugalis* Hübn., 133. In addition, *Macroglossum stellatarum* L., *Colias croceus* Geoff. and *Vanessa atalanta* L. were seen, and reported by others from a wide range of localities in Co. Cork, often in large numbers. *Cynthia cardui* L. was reported, but not seen by the writer, and a single larva of *Acherontia atropos* L. was brought into the Department of Zoology. — A. A. MYERS, Department of Zoology, University College, Cork, Ireland.

TRIAENODES SIMULANS TJEDER (TRICHOPTERA: LEPTOCERIDAE) FROM A RIVER IN SOUTH WEST WALES. — On 5th August, 1975, adults of *Triaenodes simulans* Tjeder were collected with other leptocerid species from marginal vegetation of the River Teifi in Tregaron bog, two miles north east of Tregardon, Cardiganshire (Grid Ref. SN(22) 687 631). Both males and females were obtained, and identified using Macan (1973, *Scient. Publs. Freshwat. biol. Ass.*, 28) and Pelham-Clinton (1966, *Entomologist*, 99: 47-50). Mr P. C. Barnard of the British Museum (Nat. Hist.) kindly confirmed the identification.

Larvae of a *Triaenodes* species had previously been reported from the Tregaron bog region of this river by Jones (1943, *J. Anim. Ecol.*, 12: 115-123) and also by Thomas (1962, *J. Anim. Ecol.*, 31: 175-205). It is, therefore, possible that these larvae may have been *Triaenodes simulans*.

This species has only been described elsewhere in the British Isles from Aberfoyle, Perthshire, by Morton, who originally recorded it as *Triaenodes reuteri* McLachlan (Morton, 1906, *Entomologist's mon. Mag.*, 42: 270-271), and who subsequently corrected the identification to *T. simulans* (Morton, 1931, *op. cit.*, 67: 16-17). More recently, two adult males of *T. simulans* were taken in 1968 from a light trap at Haverfordwest, Pembrokeshire, operated for the 1964-68 Rothamsted

Insect Survey (Dr M. I. Crichton, *pers. comm.*).—R. A. JENKINS, and M. D. MOLD, Welsh National Water Development Authority, South West Wales River Division, Penyfai House, 19, Penyfai Lane, Llanelli, Dyfed, SA15 4EL.

HYDRAECIA OSSEOLA HUCHERARDI MAB. (GIANT EAR) NEAR ROCHESTER, KENT.—I would like to report the capture of a male of this species at an m.v. lamp, near Rochester, on 2nd September, 1975.—D. A. SAUNDERS, Flat 4, Lower Fant Road, Maidstone, Kent. [This is an interesting extension to the known range in Britain of this very local moth, though we have in fact long suspected it might occur in the Medway estuary.—Editor]

MACROGLOSSUM STELLATARUM L. IN S. DEVON IN 1975.—Feeding on valerian, at Slapton Sands, two moths were observed on 28th August and one on 2nd September.—H. L. O'HEFFERNAN, 3, Coombe Meadows, Chillington, Kingsbridge, S. Devon.

MYTHIMNA UNIPUNCTA (HAW.) IN KENT.—I wish to report the capture of a single specimen of the White-speck Wainscot at Dungeness on the night of 4th October, 1975. It was a cool night and the above was one of the half dozen or so insects recorded.—P. J. BAKER, Mount Vale, The Drive, Sandhills Lane, Virginia Water, Surrey, GU25 4BP.

FURTHER EARLY NOTES FROM SUSSEX DURING 1974.—In confirmation of, and further to, Mr G. Summers' observations in East Sussex (*Ent. Rec.*, **87**: 212) concerning early emergences during the spring of 1974, I record the following notes culled from my diary.

The first male *Anthocharis cardamines* L. personally noted in flight during 1974 was near Lewes on 2nd April, and the main emergence of this sex around the 10th. However, female *cardamines* were only on the wing at the end of the month at this locality, with none being seen until 30th April. *Boloria euphrosyne* L. also appeared somewhat early in 1974, with my first being seen on 20th April and the main emergence almost four weeks later at this locality. I believe these dates may be the earliest sightings for *cardamines* and *euphrosyne* in East Sussex for at least six years.—COLIN PRATT, "Oleander", 5, View Road, Peacehaven, Newhaven, Sussex.

We regret that a double November/December issue has been necessitated by lack of available funds to enable us to print our normal two monthly numbers. Hopefully, following the rise in subscription, full issues will be published in 1976.—Editor.

Butterflies of Lebanon by **Torben B. Larssen**, xv + 256 pp. + 16 col. plts. National Council for Scientific Research, Beirut, Republic of Lebanon. Distributed by E. W. Classey Ltd., Park Road, Faringdon, Berks., SN7 7DR. £7.50.

The author opens with a general description of Lebanon; firstly its location and geological structure, then a general account of the population and the various industries they pursue. The climate is dealt with and rainfall and temperatures at the various times of year are shown by tables. Some ten pages deal with the flora in the various zones. Chapter 2 gives a history of collecting in the country since 1832, with mention of many entomologists who have worked in the country since then. Chapter 3 gives a check list of 139 species, of which the author has taken all but two of which there are reliable records, and eight of which he has only seen collected specimens with reliable data.

Zoogeography is the subject of Chapter 4, illustrated by maps setting out the widely various distributions of certain species, illustrative of the various faunae represented in Lebanon. These are covered by short notes, and the chapter ends with a brief summary of the situation.

Chapter 5 deals with distribution of species in Lebanon and divides the country into phytogeographical zones, finishing with a list of the species tabulated with their frequency in each of these areas, graded in four degrees of frequency from "main habitat" to "status uncertain". Chapter 6 makes a short reference to the surrounding countries and Chapter 7 deals with the economic importance of seven species.

Chapter 8 deals with the classification of butterflies and Chapter 9 deals individually with the species, each of which is treated similarly with name, vernacular name, status, range (including a short account of the species in Lebanon) and a note of the larval foodplant. The coloured plates are very well executed, the insects being photographed against a background of coarse, unbleached linen, which seems to minimise or delete shadow. Besides the 139 species so dealt with, there is a list of 22 species which one might possibly meet, some having been erroneously recorded, some doubtfully recorded, and some probables, not yet recorded.

A list is given of the localities cited with a short note on the character of each district: some 85 localities are so dealt with. There follows a list of abbreviations used and 148 references. The indices include one of butterflies and one of plants. A final postscript adds one species, *Quercusia quercus* Linn., found by the author after the final proof of the manuscript had been passed.

The book is well printed on good paper and bound in red cloth with an art paper dust jacket. It will be most useful to the increasing number of lepidopterists who are yearly venturing further from home in pursuit of their interest. It is not too big to take on such a journey. Furthermore, it is a handsome addition to any entomological library. — S.N.A.J.

When, about 1900, Edward Goodwin first discovered the dark *sylvata* in the Watlingbury district, the population there was predominantly typical.¹ However, the melanic forms subsequently increased, and within the past 25 years have almost replaced the type there.² These dark forms seem to be restricted to the woods lying between Maidstone and Plaxtol in div. 11 and, as far as is known, to occur nowhere else in the world. A further interesting fact is the habit of these moths of resting by day on the stems of Spanish chestnut. Indeed, the late W. A. Cope, who had regularly observed the insect in this area over a period of 60 years,³ told me he had never seen it in these woods in any other situation, and that consequently the darker forms were always the more difficult to spot (C.-H.).

FIRST RECORD, 1809: "Habitat in Cantio at infrequens. Imago f. May. *Sylvis cretaceis*." (Haworth, *Lep. Brit.*, 330).

¹ Bankes (*loc. cit.*) writing in 1907, states that Goodwin estimated that only about 10% to 15% of the specimens met with in the locality are, to a greater or lesser extent, darker than the type.

² The type probably now represents less than 5% of the local population, and the only typical example noted in the area to my knowledge within the past 30 years is the one taken by Dr G. A. N. Davis in 1956 (C.-H.).

³ During the 1940s, the species underwent a period of comparative scarcity in the Watlingbury-Mereworth district; and in a letter to me dated 4.vii.1948, W. A. Cope suggested the moth "may have reverted to its scarcity of 60 years ago when I first knew of it and then the dark form was unknown" (C.-H.).

***Minoa murinata* Scopoli : Drap Looper.**

Native. Woods; [on *Euphorbia amygdaloides*].

Note: The apparent near-absence of *murinata* from the Weald is remarkable.

1. West Wickham, August 17th 1845 (Stainton, *Zoologist*, 1223); one, June 1883 (Geldart, *Entomologist*, 16: 278); 1891 (Wells, *Ent. Rec.*, 3: 35). Abbey Wood, sixteen, June 16th, one, June 23rd 1860 (Fenn, *Lep. Data*). There is no record of its occurrence in this division since 1891, and in 1895, Fenn (*Ent. Rec.*, 6: 230) recorded it as extinct in metropolitan Kent.

3. E. Blean Woods, June 11th, 30th 1865, May 26th-June 3rd 1866 (Fenn, *Diary*). Den Grove, July 7th 1926; Clowes Wood, June 18th 1927 (H. G. Gomm, *Diary*). Thornden and E. Blean Woods, May 29th 1931, July 27th 1934 (A. J. L. Bowes). Great Hall Wood, common, August 12th 1955; I also encountered it not uncommonly between 1934 and 1954, flying by day among *E. amygdaloides* in the open parts of Timber, Paddock, Thornden, Little Hall, Great Hall, Hoath, Church and Kemberland Woods, in May-June and occasionally in August (C.-H.).

5. Chelsfield*, 1900 (Carr, *Entomologist*, 34: 108).

6. Longfield (Jennings, *Entomologist*, 4 (54), ii). [Gravesend, 1867, four taken by D. T. Button (South *Entomologist*, 27: 104).]

6a. Darenth (Stephens, *Haust.*, 3: 294); 1859 (Harding, *Ent. week. Int.*, 6: 76); rather common, 1861 (Jones, *Ent. week. Int.*, 10: 187); ten, May 21st, two, May 29th 1865 (Fenn, *Diary*); (E. J. Hare).

7. Wigmore Wood (Chaney, 1884-87). Chatham*, June 8th 1908 (Ovenden, *Ent. Rec.*, 20: 186). Kings Wood (Scott, 1936). Chilham, June 24th, July 8th 1951 (W. D. Bowden).

8. Folkestone (Ullyett, 1880). Woolwich Wood, one, June 7th 1899, one, May 24th, four, June 3rd, four, June 17th 1900, one, June 5th, one, June 9th 1901 (H. D. Stockwell, *Diary*; Stockwell, *Entomologist*, 35: 26). Covert Wood (H. C. Huggins). Wye* (Scott, 1936).

11. Aylesford, ♀ 1951† (G. A. N. Davis). Hoads Wood, one, taken north of the road, c. 1958 (P. Cue, *in litt.*; Scott (1964), refers).

VARIATION. — In RCK is ab. *cyparissaria* Mann., three, "Folkestone, E. W. Browne, vi.91"; two, "W. Purdey, '92, Folkestone".

FIRST RECORD, 1831: Stephens, *Haust.*, 3: 294.

***Lobophora halterata* Hufnagel : Seraphim.**

Native. Woods, waysides; on aspen.

1. Bromley (Watchurst, *Entomologist*, 16: 19); scarce (Hope Alderson, in *Wool. Surv.*, 1909); 1961 (1), 1963 (2), 1964 (2), 1966 (2)

(D. R. M. Long). Bromley Common, common among aspen (W. A. Cope). Keston, 1905 (W. Barnes, in *Wool. Surv.*, 1909). West Wickham Wood (Wells, *Entomologist*, **25**: 194); 1920 (de Worms, *Lond. Nat.*, **1956**: 74); very common among aspen, 1926-29 (S. Wakely). Eltham, common (Jones, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, **1900**: 70). Lee, 1892 (Fenn, *Ent. Rec.*, **3**: 202) (Halfway Street (*Wool. Surv.*, 1909), may refer). Bexley district (L. W. Newman, in *Wool. Surv.*, 1909). Bexley Park Woods, several, May 20th 1921, two, May 1926; Sidcup, singletons, 1921-23, 1927, 1937; Farningham, a few larvae, July 9th 1926 (A. R. Kidner, *Diary*). Shooters Hill Woods, on tree trunks, July 11th 1955, May 15th 1956 (A. A. Allen). Chislehurst, 1906, 1909, 1911, fairly common in one spot now destroyed (S. F. P. Blyth). Petts Wood, 1951, 1953 (A. M. Swain). Orpington, 1954 (L. W. Siggs); two, 1958 (R. G. Chate-lain). Crofton, larva on aspen (D. R. M. Long). Abbey Wood, 1954 (A. J. Showler). Dartford, common (B. K. West). Bexley, ♀, May 27th 1968 (D. O'Keeffe).

3. Sturry, one, May 16th 1925 (H. G. Gomm). Whitstable, common on poplar trunks annually in South Street, also along railway line to Chestfield; Blean (P. F. Harris).

4. Sandwich (*V.C.H.*, 1908).

5. Chelsfield (A. M. Swain).

6a. Swanscombe, 1843-44 (Bedell, *Zoologist*, 1007). Cobham Wood, June 1st 1915 (F. T. Grant). Darenth Wood, 1911-15, 1919, 1925, common (F. T. Grant); (H. C. Huggins). Lords Wood (E. J. Hare).

7. Long Beech Wood (Scott, 1936).

8. Elham (W. E. Busbridge). Poulton; Whitfield (E. & Y., 1949).

10. Sevenoaks, two on poplar trunks, June 3rd 1922 (Gillett, *Diary*). Brasted, amongst aspen (R. M. Prideaux). Westerham, larva (Jacobs, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1931-32**: 75).

11. Mereworth Wood, one, May 15th 1949 (C.-H.). Aylesford, three, 1954 (G. A. N. Davis). Hoads Wood (P. Cue); two, June 15th 1955 (W. L. Rudland).

12. Ham Street, June 1st 1935 (A. J. L. Bowes); (G. V. Bull); several at light, May 14th-June 6th 1939; very common very locally in Long Rope at rest on aspen trunks by day, May 15th 1948; many worn (C.-H.); June 2nd-4th 1950, June 1st-2nd 1956, in Orlestone Woods (R. F. Bretherton).

13. Tunbridge Wells, fairly common (Knipe, 1916).

14. Sandhurst (G. V. Bull).

VARIATION. — I have two ab. *zonata* Thunberg. from Ham Street, and have seen other *zonata* from there (C.-H.). In RCK are the following: ab. *variegata* Lempke, several from Bexley and N. Kent; ab. *zonata* Thunberg, Folkestone, Bexley and N. Kent; ab. *rudolphi* Lampa, Bexley (1), Bromley (1), N. Kent (1); ab. with "black base", Bexley (2).

FIRST RECORD, 1809: "Habitat Imago i Jun. in Betuletis Cantii, at infrequens" (Haworth, *Lep. Brit.*, 356).

Trichopteryx polycommata Denis & Schiffermüller : Barred Tooth-striped.

Native. Bushy places on the chalk, probably casual elsewhere; on *Ligustrum vulgare*.

1. "Two females . . . taken in a lane near Dartford Heath . . . beginning of April 1824; and Mr B. Standish took two males upon the wing the 10th April this year in the same place" (Curtis, *Br. Ent.*, 81). "Dartford" (Morris, *Br. Moths*, **2**: 4); and "Between Eltham and Birch Wood" (Stephens, *Haust.*, **3**: 276), may both refer to the previous record.

6. Greenhithe*, formerly (*V.C.H.*, 1908).

6a. Darenth Wood. — "I took a fine specimen of *Lobophora polycommata* at Darenth Wood on Easter Monday last" (1850) (Bouchard, *Zoologist*, 2793); March, rare (Douglas, *Zoologist*, 3218).

8. Folkestone. — Listed by Ulyett (1880)*; exhibited at a meeting of the S. London ent. nat. Hist. Soc. on September 12th 1889 by J. R. Wellman (Barker, *Entomologist*, **22**: 264)*; two bred, March 7th 1904, from larvae (H. D. Stockwell, *Diary*)*. Folkestone Warren. — 1932, 1933 (J. H. B. Lowe); common, Mach 29th 1939, ten larvae on *L. vulgare*,

June 10th 1962 (C.-H.); seventeen, April 8th 1951 (D. G. Marsh); common, 1955 (P. B. Wachter); A. M. Morley told me he had found *polycommata* the whole length of the Warren, but that it was mainly present by the path leading down from Capel (C.-H.). Dover, by hedgerows, April 1881 (Eedle, *Entomologist*, **14**: 116); series bred 1953 (Youden, *Proc. S. Lond. ent. nat. Hist. Soc.*, **1953-54**: 50). Brook, 1947 (C. A. W. Duffield in Scott, 1950). Wye*, 1925 (15), bred by E. A. Cockayne, in RCK (C.-H.).

10. Seal neighbourhood* (Carrington, *Entomologist*, **13**: 76).

12. Wye, one at rest on a hedgerow, March 28th (not April 28th as stated) 1949 (Chalmers-Hunt, *Entomologist*, **82**: 140); March 10th (1), 11th (1), April 1st (1) 1957, all in light trap (W. L. Rudland).

16. Folkestone, one on fence, March 26th 1939 (A. M. Morley).

VARIATION. — In RCK are: ab. *prospicua* Prout, one, Folkestone, 1893; ab. with "pale ground", one, Folkestone; ab. with "band distinct", one, Folkestone, 1904, L. B. Prout.

FIRST RECORD, 1825: Curtis, *loc. cit.*

T. carpinata Borkhausen : Early Tooth-striped.

Native. Woods; foodplant unknown. Rare or extinct in 1, probably casual in 15.

1. West Wickham, 1864, on Scotch fir trunks (Meek, *Ent. mon. Mag.*, **1**: 190); April 1866 (Miller, in *Ent. Ann.*, **1867**: 156); May 3rd 1867 (Blackburn, *Ent. mon. Mag.*, **4**: 42); several (Geldart, *Entomologist*, **16**: 135); common (Wells, *Ent. Rec.*, **2**: 87, **3**: 35). Eltham, occasionally (A. H. Jones, in Buckell & Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, **1900**: 70). Shooters Hill; West Wood; Dartford district*; Halfway Street Woods; Dartford Heath (C. Fenn, in *Wool. Surv.*, 1909). Bexley district (L. W. Newman, in *Wool. Surv.*, 1909). Farnborough, scarce (W. Barnes, in *Wool. Surv.*, 1909). Sidcup (*V.C.H.*, 1908). Petts Wood, one seen many years ago (S. F. P. Blyth). Bromley, one at light, April 6th 1961 (D. R. M. Long).

3. Herne Bay, April 12th 1933, April 13th 1934 (A. J. L. Bowes). Canterbury, occasional (J. A. Parry). Dengrove, Sturry, one, April 6th 1938; Barton Wood, April 16th 1938 (C.-H.).

6. Greenhithe* (Farn MS.). Plaxdale Green, near Kingsdown, one, 1954 (B. K. West).

6a. Darenth (West, *Ent. Rec.*, **18**: 199).

7. Westwell (Scott, 1936). Long Beech Wood, four, April 15th 1939 (C.-H.).

8. Folkestone* (Ullyett, 1880). Dover, one, April 20th 1909 (P. A. Cardew, *Diary*); "in all the woods" (E. & Y., 1949). Elham, one, April 17th 1927 (W. E. Busbridge, *Diary*). Covert Wood, May 4th 1935 (J. H. B. Lowe). Brook* (C. A. W. Duffield). West Wood, one, May 21st 1950 (A. M. Morley).

10. Westerham* (see *First Record*). Sevenoaks (Hill, *Entomologist*, **19**: 185). Brasted Chart, March 29th 1913, April 18th 1914 (Gillett, *Diary*).

11. Watlingtonbury (*V.C.H.*, 1908); specimens in E. Goodwin coll. (C.-H.). Maidstone, one (F. T. Grant). Aylesford, two, 1954 (G. A. N. Davis). Hoads Wood, April 13th 1954, on catkins (P. Cue); two, April 11th 1955 (W. L. Rudland).

12. Ham Street. — April 16th 1934 (A. J. L. Bowes); occurs regularly in small numbers in Long Rope and adjacent woods (C.-H.); ten, April 23rd 1955 (W. L. Rudland); two, May 6th 1960 (R. G. Chatelain); frequent annually, 1966-68 (D. O'Keeffe).

13. Tunbridge Wells (E. D. Morgan).

15. Dungeness, one, June 11th 1932; one, April 4th 1946 (A. M. Morley).

16. Near Hythe* (Morley, 1931).

VARIATION. — In RCK is ab. *obscura* Lempke, West Wickham, three bred, ex Farn coll.

FIRST RECORD, 1809: "*Phalaena costaestrigata* Haw. . . . Habitat in Cantio apud Westerham. Imago Truncis Jul. D. Plastead" (Haworth,

Lep. Brit., 2: 319). The time of appearance is not indicative of the moth and may be erroneous; but, the description agrees, and according to Staudinger & Rebel (1901), *costaestrigata* Haw. = *carpinata* Bork., so presumably *carpinata* was intended. For a more positive first record, however, there appears to be nothing earlier than 1864: Meek, *loc. cit.*

Pterapherapteryx sexalata Retzius : Small Seraphim.

Native. Woods, marshes, sallow carr; [on sallow]. Evidently long extinct in div. 1.

1. Lewisham, one, July 30th 1846, at sugar (Stainton, *Zoologist*, 1790); one, July 16th 1847 (Stainton, *Zoologist*, 1915). Halfway Street Wood, July 6th 1867, by A. H. Jones (Fenn, *Diary*). Abbey Wood (Juby & Hards, 1925). [(Orpington, 1948 (Siggs, in de Worms, *Lond. Nat.*, 1956: 74) is erroneous (L. W. Siggs, *in litt.*).]

2. Faversham* (J. P. Barrett, *Entomologist*, 3: 331).

4. Ham Fen, one, June 17th 1950, one, July 2nd 1955 (C.-H.). Minster Marshes, June 25th (1), July 16th (1) 1951 (W. D. Bowden). Stodmarsh, larva, imago emerged June 25th 1954 (E. Philp). Worth, July 27th 1967 (T. W. Harman).

6a. Chattenden Roughs, one, May 1874, by J. J. Walker; and another since (Chaney, 1884-87). [Darenth Wood, six, May 25th 1912 (*Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1912-13: 26).]

7. Westwell, one, in G. V. Bull coll. taken by E. Scott, August 4th 1945 (C.-H.).

10. Seal Chart, July 10th 1937 (Coote, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1937-38: 45). Westerham, one at light, 1938 (R. C. Edwards).

11. Aylesford, two, 1954 (G. A. N. Davis). Maidstone Town, one, July 16th 1955 (E. Philp). Hoads Wood, one, June 24th 1954, one, July 13th 1955 (P. Cue MS.).

12. Wye* (Scott, 1936). Brook* (C. A. W. Duffield).

13. Tunbridge Wells district*, rather scarce (M. M. Phipps, in Knipe, 1916).

FIRST RECORD, 1809: "Imago in Sylvaticis Cantii, i. Aug. at valde infrequens" (Haworth, *Lep. Brit.*, 357).

Acasis viretata Hübner : Yellow-barred Brindle.

Native. Bushy places, etc.; on ivy.

1. Birch Wood (see *First Record*). West Wickham, May 24th 1862 (Wormald, *Week. Ent.*, 1: 141); 1930 (Wakely, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1930-31: 75); May 1952 (Birchenough in de Worms, *Lond. Nat.*, 1956: 74). Eltham, occasionally at light (A. H. Jones in Buckell & Prout, *Trans. Cy. Lond. ent. nat. Hist. Soc.*, 1900: 70). Lee (W. West in *Wool. Surv.*, 1909). Dartford Heath (Fenn in *Wool. Surv.*, 1909). Bexley district (L. W. Newman in *Wool. Surv.*, 1909). Farnborough, one, 1901 (Hewitt in *Wool. Surv.*, 1909). Bexley (L. T. Ford). Petts Wood, one, 1951 (A. M. Swain). Bromley, May 13th (1), 20th (1) 1960, April 17th (1), May 3rd (1), August 5th (1), 8th (1), 13th (1) 1961, August 9th 1963 (1), May 19th (1), 31st (1), August 19th (1) 1964, August 19th 1965 (1), August 22nd 1966 (1), all at light (D. R. M. Long). St. Mary Cray, July 29th 1964 (1) at light (R. G. Chatelain).

3. Whitstable, one, August 6th 1937 (P. F. Harris). Herne Bay, occurs rarely (A. J. L. Bowes). Bysing Wood (H. C. Huggins). Eddington, May 16th 1946 (1), June 20th 1950 (1), 1951 (1), 1952 (2), May 16th 1953 (1) (D. G. Marsh). Broad Oak, one, May 15th 1938 (C.-H.). Canterbury City, very occasional (J. A. Parry).

4. Ickham, several, 1954-59 (D. G. Marsh). Worth, 1961; several at m.v.l., 1969 (T. W. Harman).

5. Knockholt, June 4th 1917 (Gillett, *Diary*). Halstead (R. E. E. Frampton *teste* S. Wakely). Chelsfield, one, 1952 (A. M. Swain). Westerham (R. C. Edwards).

6. Greenhithe* (Farn MS.). Pinden, one, 1952 (E. J. Hare). Cuxton, larva, moth bred April 1911 (Russell, *Ent. Rec.*, 24: 145). Eynsford, one larva on ivy, 1951 (H. E. Hammond). Kingsdown, six on larch trunks one day in 1952 (B. K. West). Shoreham, one, August 26th 1956 (Jacobs,

Proc. S. Lond. ent. nat. Hist. Soc., 1956: 84). Trottiscliffe, August 25th 1962 (Masse, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1962: 100).

6a. Darenth (Gregson, *Week. Ent.*, 1: 92).

7. Westwell (Scott, 1936); "usually common" (Scott, 1950).

8. Folkestone* (Ulyett, 1880). Folkestone Warren, 1929 (Morley, 1931). Wye, September 2nd 1937 (A. J. L. Bowes); two, May 31st 1951 (G. Law); one, August 17th 1953 (W. L. Rudland). Brook, larvae, 1936 (E. Scott); an imago, May 8th (A. M. Morley, *Diary*). Dover, larva, September 23rd 1934 (J. H. B. Lowe); several, 1942-44 (B. O. C. Gardiner). Alkham; Betteshanger; Deal; Ewell Minnis; Shepherdswell; Waldershare (E. & Y., 1949).

9. Minster, one, 1914 (H. G. Gomm, *Diary*). Ramsgate, one, May 15th 1918 (J. W. C. Hunt); one, May 12th 1920 (Sergeant *Entomologist*, 53: 188). Broadstairs, one, 1920 (Hayward, *Entomologist*, 53: 236). Margate, one on fence, May 16th 1920 (H. G. Gomm, *Diary*); three, August 10th-20th 1950, two, June 14th-19th 1951 (W. D. Bowden). Westgate, one, August 6th 1920, on sycamore trunk (H. G. Gomm, *Diary*). Birchington, one, August 4th 1926 (H. G. Gomm, *Diary*); one, June 12th 1951 (W. D. Bowden).

10. Sevenoaks, August 6th 1920, August 20th 1922 (Gillett, *Diary*).

11. Watlington (V.C.H., 1908). Benenden (G. V. Bull). Aylesford, two, 1953, two, 1954, one, May 24th 1955 (G. A. N. Davis). Hoads Wood (P. Cue). Sevenoaks Weald, four, April 24th-August 20th 1960 (E. A. Sadler).

12. Ashford, August 22nd 1954 (P. Cue). Willesborough, one, August 24th 1956 (W. L. Rudland). Ham Street, one, September 2nd 1934 (A. G. Peyton); June 2nd 1956, in Orlestone Woods (R. F. Bretherton). Charing, one, 1960 (M. Singleton). W. Ashford, one at light, 1960 (M. Enfield). Willesborough, one, 1960 (D. Youngs). Hothfield Common, August 23rd 1961 (Scott, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1961: 84).

13. Tunbridge Wells (E. D. Morgan). Goudhurst, one, 1951, one, 1960 (W. V. D. Bolt).

14. Hawkhurst, 1869 (Melvill, *Entomologist*, 5 (74), ii). Sandhurst, one, 1931, one, 1943, one, 1948 (G. V. Bull).

16. Folkestone (A. M. Morley).

VARIATION. — In RCK are two examples, from W. Kent, 1907, of an ab. with "markings sparse or obsolescent".

FIRST RECORD, 1831: "I have taken three or four examples at Birchwood" (Stephens, *Haust.*, 3: 278).

***Abraxas grossulariata* L. : Magpie.**

Native. Gardens, orchards, hedgerows, bushy places, etc.; on *Euonymus europaeus*, *E. japonicus*, sloe, hawthorn, gooseberry, plum, blackcurrant, flowering currant. "Generally abundant" (V.C.H., 1908). Frequent and recorded from all divisions except 10 (probably occurs).

The moth is normally on the wing in July and early August, but in 1939 A. R. Kidner (*Diary*) noted it at Sidcup as early as June 12th; and in 1960, de Worms (*Entomologist*, 94: 163) recorded seeing it in the Ham Street area on September 3rd.

In town gardens the larva is mainly on the cultivated *Euonymus japonicus*, and in country areas on sloe, becoming in certain years extremely plentiful on both. For example, in 1929, it swarmed on the *Euonymus* hedge in my garden at Birchington to such a degree that one could easily have collected them in handfulls (C.-H.); and in 1861, Fenn (*Diary*) noted that in the Lewisham area on April 15th, it "swarmed on every sloe bush". Kershaw (*Entomologist*, 51: 66-68) records the larva at West Wickham in 1917 on gooseberry, and J. F. D. Frazer found it on this at Sole Street in 1950. Serjeant (*Entomologist*, 53: 188) noted it in Thanet on plum; and in the Sandhurst district, Bull (*Entomologist*, 63: 65) records beating out the larva from hawthorn. The larva was formerly very harmful in Kentish currant plantations (cf. Whitehead *teste* Theobald, *Insects & other Allied Pests*, 207; and Douglas, *Ent. mon. Mag.*, 19: 118); but is possibly no longer so owing to the use of chemical

sprays. Finally, West (*Ent. Rec.*, 77:49) records the larva at Bexley Heath on *Ribes sanguineum* (Flowering Currant); and D. R. M. Long noted it at Eynsford on *Euonymus europaeus* (Spindle).

Normally the species hibernates as a small larva which feeds up in the spring to pupate in May and June. Occasionally, however, the larva reaches full-growth in the autumn; thus, B. K. West observed a number in the penultimate instar on *R. sanguineum* at Bexley Heath on October 20th 1963, and Colthrup (*Ent. Rec.*, 31:76) records finding, spun up under a coping at Margate on December 16th 1918, a larva which pupated that day.

VARIATION. — Mosley (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1938-39: 27) exhibited ab. *lacticolor* Raynor and one with "smokey forewings", selected from 62 examples bred from wild Folkestone larvae. Sperring (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1909-10: 92; *Ent. Rec.*, 21: 197, fig.; 22: 300, figs.) exhibited an ab. with forewings much more suffused with black than usual, taken at Charlton by Coppeard; and Williams (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1886: 46, plate 1, fig. 2) exhibited a striking ab. bred from Sidcup.

The following abs. are in RCK: *cupreofasciata* Raynor, Bexley, one, bred; *axantha* Raynor, Bromley, N. Kent, Brockley; *paucisignata* Lempke, Folkestone, several; *radiata* Raynor, Folkestone; *continua* Lempke + *impunctifasciata* Ons., Bexley, bred; *continua* Lempke, with "cream ground", Folkestone; *magnipuncta* Lempke, Bexley, *albispatiata* Raynor, N. Kent; trans ad *nigrolineata* Raynor, Lewisham; trans ad *hazeleighensis* Raynor, N. Kent, Lewisham; *lunulata* Porritt with "elongated marginal spots on forewing", N. Kent, Bexley; *melanapicata* Porritt with "fore and hindwings radiated", Bexley; *cuneata* Raynor, N. Kent, Brockley, Folkestone; *nigrosarsata* Raynor with "fine peppering", N. Kent, Bexley; *nigrosarsata* Raynor with "cream ground colour", Lewisham, bred; *nigrosarsata* Raynor, N. Kent, two, bred; *nigrotincta* Raynor, N. Kent, one, Bexley, several, bred; *subviolacea* Raynor, Bexley, *infrafasciata* Raynor, Bexley; *vaccata* Porritt, Bexley, bred, N. Kent, bred; *dohrnii* Koenig (= *lacticolor* Raynor), Bexley, one, bred; *centralipuncta* Raynor, Kent, one, 1888, bred; *chalcocoma* Raynor, Bexley, one, 1945, bred. Also, two exhibiting peroneural defect: Bexley, bred 1908, L. T. Ford; S.E. London, C. W. Sperring.

Black larvae have been twice recorded. In South-east London, Adkin (*Ent. Rec.*, 17:45) found them on "an old bush growing in a densely smoky district, close to the Thames"; and West (*Ent. Rec.*, 18: 198) took larvae "entirely black, that had hibernated on tarred fences near blackcurrant trees".

FIRST RECORD, 1861: Lewisham (Fenn, *Diary*, 8.iv.1861).

A. *sylvata* Scopoli : Clouded Magpie.

Native. Woods, copses, parkland; on *Ulmus glabra*, *U. procera*.

Note: An extremely local species. Colonies exist at Dover, Shoreham, Abbey Wood and probably elsewhere. There is some indication that the moth occasionally migrates. In 1951, following violent and widespread thunderstorms, it appeared almost simultaneously in localities whence it was previously unknown, together with such known or suspected immigrants as *Lithosia quadra* L. and *Spodoptera exigua* Hübner.

1. "I possess a specimen captured on Shooters'-hill" (Stephens, *Haust.*, 3:246). West Wickham, June 27th 1857, one taken by J. Francourt (Newman, *Zoologist*, 5719); June 1857 (Wood, *Ent. week. Int.*, 2: 109). Near Woolwich [Abbey Wood?] June 18th (1861) (A. H. Jones), *Ent. week. Int.*, 10: 187). Abbey Wood. — one, June 26th 1861 (Fenn, *Ent. week. Int.*, 10: 196); one, June 6th 1862 (Fenn, *Diary*); June 21st 1930, in considerable numbers (*Lond. Nat.*, 1930: 15); common locally in Lessness Woods, 1948 (J. F. Burton); 1953 (J. Green); one, 1956 (W. J. Popham); one in m.v. trap, 1958 (A. J. Showler). Orpington, one, June 29th 1957 (R. G. Chatelain).

4. Ham Fen, one, June 17th 1950, one, July 9th 1960 (C.-H.). Sandwich, one on a gas lamp, July 31st 1951 (W. D. Bowden). Ickham, July 15th 1956 (1) (D. G. Marsh).

5. Downe, one, 1891 (Hope Alderson, in *Wool. Surv.*, 1909); one worn ♀, July 8th 1973 (C.-H.). High Elms, August 2nd-3rd 1962 (about

14) at m.v.l. (B. F. Skinner); August 10th 1962 (several) at m.v.l. (R. G. Chatelain); 1963, several taken by T. Honeybourne (B. K. West); July 26th 1964 (a few) (R. G. Chatelain); larva on wych elm (D. R. M. Long).

6. Between Whitehill and Dunstead Priory, Shoreham, 1939 (3), 1942 (1), 1947 (1), 1950 (1) (H. E. Hammond).

7. Chatham district. — Taken some years ago near the Hook and Hatchet Inn, by Mr Tyrer (Chaney, 1884-87). Tyrer (*Ent. Rec.*, 1: 110) says he first took *sylvata* near Chatham twenty years ago, i.e. in 1870. Between Chatham and Queendown Warren, a few, June 6th 1890; Queendown Warren, one, June 10th 1891 (Tyrer, *Ent. Rec.*, 1: 207, 2: 111). Rainham Park, two, 1940 (R. F. Birchenough). Wood between Detling and Bredhurst, two by Cave-Brown [c. 1880] are in Maidstone Museum (C.-H.).

8. Folkestone Warren (Knaggs, 1870). Dover. — "Formerly common, but now extinct for miles around Dover" (Webb, *South. east. Nat. (Dover)*, 1903: 55); five, July 10th, 13th 1939, at Kearsney and Temple Ewell (*Entomologist*, 72: 220; E. & Y., 1949); one in the town on fence, c. 1947 (J. A. Parry); in a garden at River, imagines 1939, July 20th 1940, July 13th, 21st 1943, July 20th 1944, June 16th, 23rd 1945, July 1950, July 1st, 7th 1951; 29 larvae on elm, August 27th-September 16th 1942, larvae, 1954 (B. O. C. Gardiner). Near East Studdal, common, August 1962 (D. L. Coats per G. H. Youden).

9. Garlinge, ♀, July 22nd 1915 (H. G. Gomm, *Diary*). Ramsgate, ♂, June 1926 (J. W. C. Hunt).

10. St. Julien's, near Sevenoaks (1841) (Tylden, *Entomologist*, 1: 204).

12. Orlestone Woods. I took 2 ♂♂, 5 ♀♀ at m.v. light in 1951 as follows: July 25th (1), 30th (3), 31 (3), and the only examples of the species known to me for the Ham Street area (C.-H.). Ashford Town, two, 1959 (P. Cue). Brook*, 1959 (Duffield *teste* Scott, 1964).

14. Tenterden, c. 1855 (S. C. Tress Beale, *Diary*).

16. Folkestone Town, one, July 1945 (D. Smith *teste* A. M. Morley); one, August 4th 1951 (A. M. Morley).

VARIATION. — Youden (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1953-54: 50) exhibited a specimen of ab. *pantarioides* Spitz. bred from a ♀ taken Dover, 1952.

FIRST RECORD, 1831: Shooter's Hill (Stephens, *loc. cit.*).

***Lomasipilis marginata* L. : Clouded Border.**

Native. Woods, copses, carr; on willow, white poplar, aspen, hazel. "Generally abundant" (*V.C.H.*, 1908). Frequent but apparently most plentiful in wet woodland. Found in all divisions; few records for 7, probably casual in 9.

The moth appears in June and July seemingly in one long emergence, but in early years may be well out before the end of May. In 1893, Tutt (*Ent. Rec.*, 4: 229) noted it on the wing [at Chattenden] on April 29th, a remarkably early date; and in 1965, D. R. M. Long observed it at light at Bromley as late as August 30th.

A. R. Kidner (*Diary*) found larvae "in abundance on poplar, etc." at Darenth on September 25th 1910, severally on hazel at Farningham Wood on July 9th 1926, and fairly plentifully on poplar at St. Paul's Cray Common on September 12th 1911. F. T. Grant records finding them on aspen at Stansted on August 28th 1923; and D. R. M. Long records the larva at Crofton on aspen and willow, and at Petts Wood on white poplar.

7. Bexley, 1953 (A. H. Harbottle). Westwell, one in RCK (C.-H.).

9. Margate, one, 1908, in RCK (C.-H.); June 28th 1951 (W. D. Bowden).

VARIATION. — In RCK are the following aberrations: *discocellaris* Staud., N. Kent, Eynsford, Brasted Chart, Westwell, Margate; *naevaria* Hübn., Bexley, one; *staphylaeata* Scop., Westerham, Bexley, N. Kent; Osthelder, Chattenden, Folkestone; *demarginata* Fuchs, Eynsford, Chattenden; *subdeleta* Ckll., Wye, Canterbury; *albociliata* Hörhammer, Ham Street, one, 1939, Chattenden; *diluta* Cockayne, Folkestone; also, ab. with

"discoidal spot united with costal bar", Darenth, N. Kent, Bexley, Near Canterbury, Westerham; ab. with "forewings normal, hindwings *albo-marginata*", Eynsford.

Bond (*Entomologist*, 13: 169, fig. 3) recorded one taken near Maidstone in 1878, in which the only marking is an unbroken fascia on forewing, and I took an extreme ab. in East Blean Wood in 1973, having the marginal and costal markings greatly reduced (C.-H.).

FIRST RECORD, 1859: Greenhithe (Fenn, *Diary*, 31.v.1859).

***Ligdia adustata* Denis & Schiffermüller : Scorched Carpet.**

Native. Woods, hedgerows, bushy places; on *Euonymus europaeus*. "Locally common" (V.C.H., 1908). Found in all divisions (except 2, 4 and 15), though mainly on the chalk of 6-8. Suspected casual in 4, 9, 10.

The larva has been recorded by Levett (*Proc. S. Lond. ent. nat. Hist. Soc.*, 1886: 41) from the Shooters Hill district; by Carr (*Entomologist*, 33: 40) from Bexley; and A. R. Kidner (*Diary*) records finding it as follows: Ruxley Corner, October 5th 1927 (3), Joydens Wood, September 25th 1911 (1), August 27th 1920 (a few), Dartford, June 16th 1912 (several half-grown), Luddesdown, September 12th 1934 (several). D. R. M. Long has had the larva on spindle (*E. europaeus*) at Shoreham and Eynsford.

4. Ickham, c. 1956 (D. G. Marsh).

9. Minster, one, September 6th 1915; Margate, one, August 9th 1921; Birchington, one, August 17th 1927 (H. G. Gomm, *Diary*). Monkton, one, July 16th 1911 (J. W. C. Hunt). Broadstairs, June 4th, July 20th 1951 (W. D. Bowden).

10. Brasted Station, May 31st 1912 (F. Gillett, *Diary*).

VARIATION. — B. K. West took a ♂ ab., Dartford, May 4th 1952, paler than normal and having the postmedian band on forewing broken $\frac{1}{3}$ from costa.

In RCK is ab. *plumbea* Cockayne, holotype ♀, Bexley, March 25th 1903 (originally described in *Entomologist*, 83: 53, plt. 1 fig. 13, but first recorded in *Proc. S. Lond. ent. nat. Hist. Soc.*, 1903: 69).

FIRST RECORD, 1831: "Abundant, but local, in several of the chalky districts round the metropolis, especially at Darenth Wood" (Stephens, *Haust.*, 3: 251).

***Semiothisa notata* L. : Peacock-moth.**

Native. Woods; on Spanish chestnut [and birch]. Now rare or extinct in div. 1.

1. Birch Wood (Stephens, *Haust.*, 3: 320). West Wickham, July 1856 (Wildman, *Ent. week. Int.*, 1: 132); 1858 (Healy, *Ent. week. Int.*, 4: 83); June 29th 1861 (Fenn, *Diary*); 1862 (Wormald, *Week. Ent.*, 1: 128); 1864 (Meek, *Ent. mon. Mag.*, 1: 190); 1890, 1892 (Wells, *Entomologist*, 24: 74, 25: 193); abundant, 1893 (Robinson, *Entomologist*, 26: 226); 1950 (E. Trundell, in de Worms, *Lond. Nat.*, 1957: 154). Petts Wood, one, August 16th 1865 (Fenn, *Diary*). Chislehurst, 1890 (Tutt, *Ent. Rec.*, 1: 64); one, July 8th 1906, one, July 16th 1907, one, May 24th 1943 (S. F. P. Blyth). Plumstead (Turner, *Proc. S. Lond. ent. nat. Hist. Soc.*, 1895: 45). Bexley district (L. W. Newman, in *Wool. Surv.*, 1909). Shooters Hill (A. H. Jones, in *Wool. Surv.*, 1909). Beckenham (W. S. Bolas, in *Wool. Surv.*, 1909). Pauls Cray Common, a larva, September 28th 1911; Farningham, one, July 9th 1926 (A. R. Kidner, *Diary*). Abbey Wood (Juby & Hards, 1925); June 21st 1930 (Burkill, *Lond. Nat.*, 1930: 15); 1947 (A. J. Showler). Bromley, one, August 7th 1964 (D. R. M. Long).

2. Near Queenborough, one, 1871 (Walker, *Ent. mon. Mag.*, 8: 184).

3. Blean Wood [Thornden Wood], one, May 31st 1861 (Fenn, *Diary*). Bysing Wood (H. C. Huggins). Elbridge Wood, one, July 1st 1921 (H. G. Gomm, *Diary*). Great Hall and adjacent woods, not common, 1934-48 (C.-H.).

5. Farnborough* (W. Barnes, in *Wool. Surv.*, 1909). Downe (R. F. Birchenough, in de Worms, *loc. cit.*).

6. Greenhithe, one, May 31st 1859 (Fenn, *Diary*).

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THE ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

(Founded by J. W. TUTT on 15th April, 1890)

The following gentlemen act as Honorary Consultants to the magazine:
Orthoptera: D. K. Mc E. KEVAN, Ph.D., B.Sc., F.R.E.S.; *Coleoptera:* A. A. ALLEN, B.Sc.; *Diptera:* E. C. M. d'ASSIS-FONSECA, F.R.E.S.

TO OUR CONTRIBUTORS

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